A CYCLE OF SELF-REGULATION TO DECREASE AVOIDANCE BEHAVIORS IN MIDDLE SCHOOL MALES

by

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Abstract

Male middle school students underperform, as measured by disciplinary referral numbers, writing scores, and classroom grade performance. The focus of the concern included the population of a suburban middle school encompassing Grades 5 to 8. Using achievement goal theory as a framework, a needs assessment determined statistically significant differences between boys and girls in several areas, including classroom grades, perception of performance approach goals, writing performance, and in levels of self-handicapping and disruptive behavior. Students who demonstrated low performance, as well as avoidance tendencies, tended to demonstrate lower self-efficacy and lower utilization of learning and self-regulation strategies. Exploring interventions addressing singular factors led to the design of an intervention that encompassed the complexity and interrelatedness of the factors, with the goal of decreasing avoidance behaviors. Interventions designed to address only one component of motivation may miss the whole dynamic picture. To address the reasons for student tendencies for avoidance behaviors, students engaged in the creation of mastery goals accompanied by explicit learning about and application of self-regulated learning strategies in classroom settings. The cyclical nature of the intervention indicated the interconnectedness of the various factors in male engagement in avoidance behaviors.

Keywords: achievement goal theory, self-regulated learning, self-handicapping, avoidance behaviors

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PASS ✓

PASS WITH CONDITIONS ____

FAIL ____

Dedication

To Cassidy: Your Dad started me on this journey. However, it was the strength and courage that you showed these three years during your own more difficult journey that inspired me.

To Jen and Tricia: Sitting next to you on that couch three years ago was the luckiest moment. We have shared so much, and I could never have made it without you. It is my privilege to have such dedicated and intelligent women as friends and colleagues.

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Executive Summary

Middle school performance and levels of success have long-lasting effects on academic, economic, and personal lives of students (Jacob, 2002). Middle school students gain and further develop academic and personal competencies necessary for success in adulthood. Simultaneously during this period, they experience developmental changes and associated decreases in motivation, engagement, and confidence (National Middle School Association [NMSA], 2010).

Studies of school belonging indicate several constructs for consideration of the decreased motivation and changes in work ethic and attitude toward school (Goodenow, 1993). There are a variety of reasons for declines in motivation, achievement, and connections to school during middle school (Theriot & Dupper, 2010). Middle school classes may be more ability-focused (Bong, 2009), and there may be an increased emphasis on student performance and whole class instruction (Theriot & Dupper, 2010). Students may appear disengaged from the functioning of the school, from making connections with other members of the school community, and from investing in offered assistance.

Thus, reasons for declining motivation in middle school include developmental factors, as well as consideration of school belonging (Goodenow, 1993), perception of school (Booth & Girard, 2014), changes in school structure (Carolan, Weiss, & Matthews, 2015), and increased disciplinary demands (Theriot & Dupper, 2010). Although reasons for declining motivation may vary, definitions of motivation share commonality in their focus on a lack of action. In this particular case, a lack of action in

completing academic tasks may have at its roots low levels of motivation (Murphy & Alexander, 2000), influencing classroom behavior and achievement.

In a systemic frame, there are many implications for students who have low levels of motivation as they move through middle and high school. As students move to the high school without the needed skills and content due to this lack of engagement and academic success, the risk factors increase. As a system, the ability to identify factors contributing to avoidance for some of the students of concern will help to meet the needs of these students before they move on to high school. Helping students to become better self-regulated learners may not be the answer for all unmotivated students but can provide an additional vehicle to address the needs of some students.

Gender Discrepancies

Differences in the research have indicated various male and female advantages in schooling. Researchers have shown evidence of a female advantage in school marks and achievement (Voyer & Voyer, 2014). Researchers have shown evidence that the genders have viewed the value of and their competency in certain academic areas differently (Meece, Glienke, & Burg, 2006). Theriot and Dupper (2010) explained that males experienced a more significant drop in academic achievement and level of psychological distress compared to females because of the transition to middle school. If there were no significant differences in achievement by standardized measures, then these differences might be explained by differences in the way the genders experienced and responded to middle school academic life.

Gender discrepancies became apparent in context based on several indicators in a review of school-level data. Specifically, males earned a greater number of disciplinary

referrals, lower classroom grades, and were scheduled for academic and behavioral intervention at higher rates (JHMS, 2018a, 2018b). Anecdotal reports from teaching teams indicated lower levels of motivation and engagement in class. Each grading period, 55% to 76% of students earning grades below C were male (JHMS, 2018b). Student Intervention Team (SIT) agendas, focused on intervention needs per state guidelines, show the majority of students on these agendas were male, resulting in a greater frequency of reading and writing interventions for males (JHMS, 2018a).

Behaviors in the school are tracked using a disciplinary referral system, with behavior definitions based on past implementation of Positive Behavioral Interventions and Supports (PBIS; Todd, Horner, & Tobin, 2010). Data showed that disciplinary referrals at JHMS were earned primarily in the classroom because of disruptive behaviors (JHMS, 2018c). These behaviors included those categorized as defiance, disrespect, noncompliance, or disruption (Todd et al., 2010). At all grades, the percentage of referrals in categories indicating low-level classroom disruption were primarily male (JHMS, 2018c), indicating a potential link between engagement in avoidance behaviors and male classroom performance. Fredericks, Blumenfeld, and Paris (2004) described these concerns as behavioral disengagement, in which a lack of participation in academic activities has academic implications. This researcher investigated the causes for this disengagement and provided an intervention designed to address the concerns.

Context

The middle school in question was located in a small district in a high socioeconomic area on the east coast and serves approximately 430 students. Students from one elementary school attended middle school in Grades 5 to 8 before moving to a

regional high school. Rates of both socioeconomic and racial diversity within the school and district were low. Both genders demonstrated high performances, as compared to state and national norms on standardized assessments, with no significant differences between the genders based on these measures (JHMS, 2018b). Findings at JHMS (2018b) indicated that motivation and connections to school among males are similar to low motivation found in the research literature. Therefore, a literature review of potential causes and an appropriate intervention were examined for potential impact on motivation and disciplinary concerns.

Narrowing the Focus: Needs Assessment and Results

A needs assessment was conducted in the spring of 2016 to determine the extent and detail of the problem in context further, as well as specific areas of focus for a proposed intervention based on achievement goal theory and self-regulation. The needs assessment included a review of school-based data, such as class grades, standardized and school-based assessment results, rates of academic intervention, and disciplinary referral numbers.

Additional quantitative data were gathered through a survey administered to students in Grades 5 to 8 ($N = 400$, 207 male and 193 female). Subtests of the Patterns of Adaptive Learning Survey (PALS) included Personal Achievement Goal Orientations; Perceptions of Classroom Goal Structures; and Academic-Related Perceptions, including Academic Self-Handicapping Strategies and Disruptive Behavior (Midgley et al., 2000). Findings showed significant differences between the genders in several areas: number of disciplinary referrals, Quarter 3 grades, school-based writing assessment results,

disruptive behavior, and self-handicapping. Based on analysis of disciplinary referral patterns, both disruptive and self-handicapping behaviors relate to assigned referrals.

Theoretical Framework

Achievement goal theory provides a framework for the study of motivation and the reasons for student engagement in certain achievement-related behaviors. Goals distinguish how learners define success and how they approach learning tasks (Ames, 1992). The learner's achievement goal, and whether it is mastery or performance based, determines the reason for their engagement in a particular behavior. Specifically, a student with a mastery-based goal orientation will focus on learning and deep understanding, either working toward mastering a skill or avoiding a loss of skills. Alternatively, a student with a performance goal orientation focuses on his/her own ability and sense of self-worth, either looking to demonstrate superior ability or avoid demonstrating inability (Midgley, 2002).

The learning behaviors connected to each goal orientation are important to understanding performance discrepancies. Students holding performance goals see effort and ability as inversely related; they are more likely to engage in avoidance behaviors and tend to have low self-efficacy (Urdan, Ryan, Anderman, & Gheen, 2002). These maladaptive learning strategies include the active process of self-handicapping, in which students act in a way that provides an excuse for poor performance (Urdan et al., 2002). Disruptive behavior, as measured by disciplinary referrals, is an example of a self-handicapping behavior (Turtura et al., 2014).

Research Design

Needs assessment results in conjunction with an understanding of achievement goal theory led to an intervention focused on self-regulated learning. Self-regulation has a cyclical quality, in which self-efficacy impacts goal orientation, determining which strategies are used, and the level at which a student can connect strategy use and results (Schunk & Ertmer, 2000; Zimmerman, 2009). An intervention designed to improve self-regulation allows students to view learning proactively, as something that they can engage in themselves rather than something that is done to them (Zimmerman, 2002). Utilizing the cycle of self–regulation defined by Zimmerman (2009) provides students with opportunities to engage in a cycle multiple times, to practice, and build on the essential components.

A mixed methods design, including pre and post assessments with a control group, was used to gather both quantitative and qualitative data to inform the research questions (Creswell & Plano Clark, 2011). The intervention focused on lessons aimed at the self-regulated learning cycle and the skills necessary to complete that cycle. Pre and post measures provided quantitative data regarding goal orientation, self-efficacy, disruptive behavior, and use of specific strategies for learning. Disciplinary referral numbers from each of the cohort's three middle school years (Grades 5, 6, and 7) were analyzed to determine potential differences in patterns for the treatment group. Qualitative data were gathered using treatment group reflections after each session, as well as control group exit tickets during the same period based on similar topics.

The intervention was designed to be student centered, focused on instruction at the level of the individual student, including their personal goal orientation and self-

regulation. The treatment group of Grade 7 students (n=14) participated in a series of 20 sessions designed to explicitly instruct and engage them in multiple cycles through the phases of the cycle of self-regulation: forethought, performance, and self-reflection (Zimmerman, 2009). Strategies focused on those specifically applicable in classes where students were enrolled, and they used class material when available. Sessions lasted for about 20 weeks, meeting approximately once per week for 30 minutes.

Implications for Practice

There were several implications of the study and results in practice. Qualitative feedback from students in the treatment group indicated the importance of generalization of several components of the instruction provided to all middle school students. Specifically, students seemed to benefit from sessions focused on learning strategies, such as note taking, time management, and preparing for tests. As part of the core curriculum, implementation would require considering several factors, including ongoing assessment to determine specific student needs. This process would allow for the implementation of lessons specific to ongoing homework loads or assigned projects, which would increase relevance and skills transfer.

Additionally, considering the design and class size to allow for conferencing and application of skills within core classes at a greater rate would be important for implementation. Students benefited from modeling of metacognitive practices and examples of attribution, as well as opportunities to pause in their new learning to apply strategies. If teachers were assigned small groups of students, conferencing, questioning, and modeling could occur more frequently to meet individual student needs.

Instruction in self-regulation and learning strategies may be essential components of grade level core curriculum moving forward, and this work must include professional development with teachers regarding self-regulated learning. This new learning would include instruction regarding the cycle of self-regulation, as well as discussions of instruction design elements that might assist students in becoming self-regulated learners. Additionally, consideration of the way in which the current grading system supports or does not support mastery goals is essential. In the study, students struggled with designing goals focused on mastering specific content or skills; growth was measured using class grades. The information gathered in this study could inform this work.

Since students engage in work at home on a regular basis, it may be important to include a parent education component. A parent education component to the implementation as part of the core curriculum would assist parents in understanding the cycle of self-regulation, what it means to have a mastery goal orientation, and how best to support their children at home. In this way, parents can assist a focus on supporting using specific strategies, such as helping students to design a productive study environment or find effective study time. Parent education may also reduce potential conflict between a grade-focused parent and a student striving to master content, not simply earn a grade.

Implications for Research

There are several areas for future research, particularly studies of a longitudinal nature. In consideration of self-regulation skills for students prior to middle school, the most conducive setting for instruction about self-regulation, and a greater understanding of how and when gender differences in self-regulation can be addressed additional information is needed. It was unclear why some students in middle school possessed the

skills of a self-regulated learner, while others who progressed through the same school system did not have these skills. A study of patterns related to which students enter middle school with greater abilities to engage in the skills of self-regulation could help identify how these skills were gained. This study might include an understanding of the way in which self-regulation is taught at the earliest grade levels, which methods have the most impact, and whether girls learn this differently than boys. Allowing students to understand a cycle of self-regulated learning at a fundamental level as they move through school may lessen concerns at the middle school level.

It was unclear whether it was best to address self-regulation in isolation (Martin, 2005) or focus on teaching the skills and strategies within the classroom (Pape, Bell, & Yetkin-Ozdemir, 2012). Further research may address the advantages and disadvantages of each with the considered potential of how combining the two approaches might be more successful. Combining explicit instruction with opportunities for application followed by instruction that is more explicit might allow for greater growth and maintenance of skills. Also not clear was the extent to which students maintained the aspects of self-regulated learning once the explicit instruction has ended. Longitudinal research that followed students for a longer period could assist in determining ways to increase maintenance of skills.

Additional research might inform an understanding of the role of student stress as related to self-regulation and goal orientation. In the treatment group, students indicated high levels of stress about their work and a pressure to achieve at high levels. These performance concerns included school grades, as well as standardized assessments. Neuroscience and greater understanding of student cognition offer vehicles for

understanding the connections between self-regulated learning and students stress levels. Future research might consider whether student stress levels connect to their ability to engage in self-regulated learning.

Finally, the SMART goal framework (Cash, 2016) did not seem to lend itself naturally to an understanding and design of mastery and performance goals. Students could create well-designed SMART goals, but they were often performance based as a way to make them measurable. Future research might focus on the design of a framework that meets the needs of students to make a goal relevant, timely, and achievable, as well as mastery based.

Chapter 1: Introduction to the Problem of Practice

Researchers have characterized the middle school years as based on tremendous physical, emotional, biological, and social changes in the lives of adolescents (Carnegie Council on Adolescent Development, 1996). Students between the ages of 10 and 15 have experienced rapid and significant changes, comparable to those that occur in infancy, with the difference that adolescents are aware of the changes as they occur (NMSA, 2010). As a crucial link in the pre-K to 16 continuum, middle school becomes the place where students need to develop academic skills and competencies necessary to set the stage for success further. The choices that students make and the attitudes and dispositions formed will influence students as they move into adulthood (NMSA, 2010).

Direct observation of outcomes related to middle school boys has led to the formulation and design of this study. In context, a clear pattern has been observed in which males lag behind their female counterparts in terms of academic achievement, and demonstrate a greater number of behavioral concerns. Both quantitative and qualitative indicators point to the need for there to be a greater emphasis on developing a deeper understanding of the factors that lead to these discrepancies, and a determination of possible interventions. At Jordan Harbor Middle School (JHMS, 2018c)[1], School Wide Information Systems (SWIS) data indicates that males have a larger number of disciplinary referrals and suspensions. This pattern is true across the entire grade range of fifth through eighth grades, with boys earning the majority of referrals in all grades. School schedule and grade data indicate that boys make up a higher percentage of the D/F list, representing between 55% and 76% of this list each grading period (JHMS,

[1] Jordan Harbor Middle School is a pseudonym used to protect confidentiality.

2018b). This percentage was disproportionate to the total enrollment of the school, which in 2016 to 2017 was 51% male, and in 2017 to 2018 was 48% male.

As part of the Scientific Research Based Intervention (SRBI) process required by the state, a Student Intervention Team (SIT) team meets regularly to discuss students encountering academic difficulty and to plan interventions to meet their needs. As indicated in Table 1, there tend to be a higher number of male referrals to SIT, and boys are scheduled for reading and writing intervention at higher rates (JHMS, 2018a, 2018b). Discussions at grade level team meetings regularly focus on students about whom the teachers have performance concerns. Male students discussed at these meetings are often on the agenda because they have low homework and classwork completion rates, demonstrate a lack of engagement in class, and are often resistant to offered interventions. While these indicators of low motivation and buy-in are not systematically measured, the anecdotal pattern, when combined with the information above, creates a picture of concern.

Table 1

Percentage of Referrals to SIT, by Gender, as Related to Overall Enrollment

Year	Overall Referrals		Literacy Referrals		Overall Enrollment	
	M	F	M	F	M	F
2016-17	57%	43%	60%	40%	51%	49%
2017-18	49%	51%	58%	42%	48%	52%

Middle School Context

Unfortunately, for the students described above, as well as some of their peers, middle school is the time where disengagement begins. Students can manifest decreased motivation, increased anxiety, and changes in work ethic and attitude toward school

(Goodenow, 1993). Teachers who work with middle school students describe the frustrations of excuse making, students who put off their work until the last minute, and who seem not to try (Midgley & Urdan, 1995). The developmental changes present challenges that can influence levels of academic achievement (NMSA, 2010). A review of patterns of student behavior, as well as data available in context, indicates that some components of the structures and conditions students encounter in middle school may have a negative impact on male academic performance.

Both quantitative and qualitative measures are used to identify and describe the factors associated with the developmental changes and the impact these changes might have on instructional decisions and school achievement. The relevant literature includes a variety of constructs that influence school achievement and form a foundation for reviewing the problem. These include studies of school belonging and the components that influence those feelings for students (Goodenow, 1993) and studies of student perceptions of school (Booth & Gerard, 2014). Other researchers have considered the impact of school structures on achievement in general or in specific content areas (Carolan et al., 2015; Holas & Huston, 2012; Kenney-Benson, Pomerantz, Ryan, & Patrick, 2006). Specific changes that students encounter as they move to middle school, such as increased disciplinary demands, could also impact achievement (Theriot & Dupper, 2010). Each provides a small piece of the puzzle, a component that may be acted upon to characterize, and in some cases, positively impact middle school achievement.

In addition to the characteristics of the school or classrooms, students bring with them their own personal characteristics. These include components of their academic background, their level of motivation, and their self-efficacy for academic and behavioral

components of school. In understanding the problem and the students demonstrating concern, it is essential to identify which characteristics can be modified within the school setting (Zuffiano et al., 2013).

One must note that the students of concern represent a subgroup of middle school students. For many students, middle school is a time of growth and positive experiences. These students meet the challenges of middle level education successfully and gain the skills and knowledge necessary to continue on their educational path. In fact, most navigate this period without high levels of stress (Eccles et al., 1993). Tolan and Larson (2014) studied trajectories of life satisfaction during middle school, based on the understanding that many students did not show patterns of increased problem behaviors, and many actually demonstrated improved positive functioning. In a longitudinal study focused on positive development processes, the authors found that 78% of the students in the sample drawn from 25 middle schools maintained a high level of life satisfaction as they moved from Grade 6 through Grade 8 (Tolan & Larson, 2014). The authors asserted that this positive trajectory might act as a buffer to the stressful components of adolescent life, allowing these students to navigate middle school more successfully (Tolan & Larson, 2014). Thus, one must delve into the reasons for positive development trajectories for some to design and intervene for those not experiencing positive outcomes.

Gender Discrepancy: Whose Advantage?

Some researchers have reported a female advantage, while others have reported a male advantage in schooling, especially from an historical perspective. In a report that served as a self-proclaimed call to action, the American Association of University

Women reviewed *How Schools Shortchange Girls,* aiming to increase awareness of existing discrepancies in the areas of math and science, and bias on standardized tests. Texts, such as *Reviving Ophelia* (Pipher, 1994), *School Girls* (Orenstein, 1994) and *Failing at Fairness* (Sadker & Sadker, 1994), outlined the psychological impacts of this type of educational neglect. Researchers have described girls as suffering more frequently from eating disorders and depression, scoring lower in math and science, engaging less in the math and science fields, and suffering from lower levels and quality of teacher feedback (Stoet & Geary, 2015; Weaver-Hightower, 2003). Similar literature can be found describing a crisis in the education of boys, in books such as *The Minds of Boys* (Gurian, 2005) *Raising Cain* (Kindlon & Thompson, 2009), and *The War Against Boys* (Sommers, 2013). Data are available to make a case for concerns about students of each gender, with different measures pointing to differing needs.

The focus of this study was not to pit boys against girls or to take away from one to have the other gain. Instead, one must understand ways gender and experiences in school related to gender might interact with context to create indicators of concern. Perhaps identification of these factors and experiences could inform educational experiences for more compared to the students of concern.

Progress through school. According to the 2004 report by the National Center for Education Statistics (NCES), *Trends in Educational Equity of Girls & Women*, there are some areas in which there are differences in the educational experiences of boys and girls (U.S. Department of Education [U.S.D.E.], 2004). In the early years of schooling, boys and girls were reported to have similar learning opportunities and skills in areas such as enrollment in pre-kindergarten programs, general knowledge in kindergarten and

first grade, and overall reading abilities. However, more girls (80 percent) were able to recognize words by sight than males (73 percent), and more females (86 percent) than males (82 percent) were read to three or more times in a week in preprimary surveys. In 1999, females ages 5 to 12 were also reported to be less likely (5 percent) than males (8 percent) to repeat a grade. Dropout rates in 2001 for 16 to 24-year-olds were 12% for males and 9% for females (U.S.D.E., 2004). Males also have trouble at school at higher rates, including diagnosis of a learning disability (21% vs. 14 percent), victimization at school (6% vs. 5 percent), and engage most in certain unsafe behaviors such as drug use and violence (U.S.D.E., 2004). Of interest is the impact that even slight earlier discrepancies might have on a student's development and the connections between those and their secondary experiences. Within the middle school setting, it may be possible that earlier academic differences influence how a student approaches learning and how they achieve academically.

Evidence of differences that might influence school behaviors is found in a meta-analysis focused on gender differences in temperament (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006). The purpose set forth by the authors was to determine the magnitude of gender differences in temperament based on three frameworks, and within those to identify moderators of those differences. One of the areas examined was effortful control, a factor composed of attention regulation dimensions (Else-Quest et al., 2006). The difference related to this factor was one of the few areas in which the authors found more than small gender differences favoring girls. Thus, girls demonstrate a stronger ability to manage and regulate attention, inhibit impulses, and control inappropriate responses and behaviors (Else-Quest et al., 2006). The authors suggest, but could not demonstrate

through their analysis, that this might be the result of a maturational lag through middle childhood. This difference in effortful control could inform differences in classroom behaviors and abilities.

Gender differences also relate to the value attached to different academic domains, as well as competency beliefs related to these domains (Meece et al., 2006). For example, boys and girls begin elementary school with a similar perception of their abilities in language arts, but by middle school, there are significant differences in competency beliefs by gender (Jacobs et al., 2002). Interestingly, these gaps are smaller in high school. Gender differences related to self-efficacy have been found to link to age and grade level (Meece et al., 2006). A review of these results indicates the need for attention to what specific differences might exist, in what areas, and what their cause might be.

School achievement measures. Evidence to support concerns about male middle school achievement can be found in discrepancies between male and female rates of disciplinary referrals, need for intervention, and prevalence of failing grades (Clark, Lee, Goodman & Yacco, 2008). These factors interact to create a level of school achievement for each student, and it is in defining and measuring the impact of these factors that targets for positive change can be identified.

Grades become a significant indicator of school achievement in middle school. In their study of the impact of IQ and self-control on standardized test results and classroom grades, Duckworth et al. (2015) explained that middle school was the time when grading practices became more about formal assessments rather than informal observations. Further, they explained that a transition in grading practices at the middle school reflected

a shift toward rank ordering of students. Grades and reporting of classroom achievement become more meaningful with higher stakes. Grades are influenced by homework completion, organization, and investment in the classroom (Clark et al., 2008), thus presenting additional factors about which to be concerned as a middle school student.

A distinct female advantage in maintaining classroom grades may exist and was explored in-depth in a meta-analysis conducted by Voyer and Voyer (2014). In their study, the authors sought to examine the differences between genders utilizing school marks, while most previous studies focused on standardized achievement measures. The authors looked not only at whether differences occurred between genders but also provided a review of what factors might moderate differences in marks. They pointed to a distinct female advantage across the content areas in school marks and school achievement (Voyer &Voyer, 2014). Further, the authors noted that this phenomenon was quite stable, as evidence of the lag was found as early as 1914 (Voyer & Voyer, 2014).

Understanding that the transition to middle school is a critical one, Theriot and Dupper (2010) investigated the relationship between this transition and the changes in type and frequency of discipline issues for students. A basic understanding motivating the investigation was the impact of the transition on boys, who experience a greater level of psychological distress and more significant drop in academic achievement than their female peers (Theriot & Dupper, 2010). The authors questioned whether there was actually an increase in discipline or whether the policies were merely more stringent, what types of infractions were occurring, as well as what interventions might reduce infractions and student stress. The investigation occurred in a medium-sized school district with 14 middle schools fed by 49 elementary schools (Theriot & Dupper, 2010).

The largest percentage of increase occurred in what the authors called subjective infractions, such as class disturbance and failure to follow the rules. Approximately 75% (73.2%) of those students earning subjective infractions were male (Theriot & Dupper, 2010). The authors offered several options for addressing discipline through mediation to reduce peer-to-peer conflict but did not offer any specific classroom interventions that might better engage students in learning and reduce the desire to misbehave.

Standardized test achievement. A review of standardized achievement test results indicated some discrepancies between the performance of boys and girls utilizing national and international measures. Historically, males outperformed females in math and science on most measures (Nowell & Hedges, 1998). However, while concerns were historically evident concerning female achievement in math and science, one must examine current trends in achievement with recent international and national results.

PISA. The Program for International Student Assessment (PISA) is an international survey of student achievement, administered every three years to 15-year olds around the world. Although not as widely used or familiar within the United States, partially due to the existence of other data sources, the database represents 470,000 students in 65 countries and therefore has much to offer concerning patterns and trends in student achievement (Brozo et al., 2014). A review of PISA data since 2000 indicates some clear patterns of performance disaggregated by gender, as shown in Table 2. The international pattern is similar (U.S. Department of Education [USDE], 2018).

Table 2

Gender Advantages on PISA Assessments for U.S. Students

	Math Average Scores			Reading Average Scores		
Year	Male	Female	Difference	Male	Female	Difference

2000	NA	NA	NA	490	518	Female +28
2003	486	480	Male +6	479	511	Female +22
2006	479	470	Male +9	NA	NA	NA
2009	497	477	Male +20	488	513	Female +25
2012	484	479	Male +5	482	513	Female +31
2015	474	465	Male +9	487	507	Female + 20

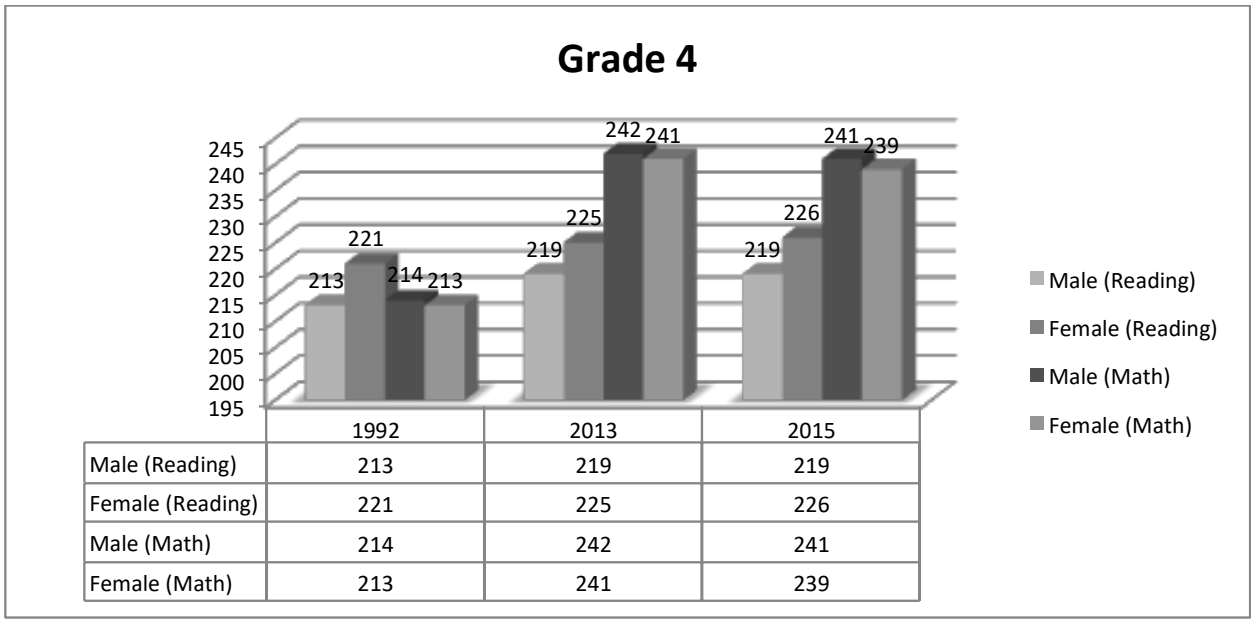
Note. Adapted from U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics (2018). *International Data Explorer: PISA.* Retrieved from https://nces.ed.gov/

A more in-depth review of the significant differences in reading results from 2009 is made possible based on a focus on reading literacy in that year. Reading literacy was emphasized by PISA every three years. Thus, 2009 provided the most recent in-depth data focused on reading engagement, habits, and practices. Information is gained from a self-reported student questionnaire regarding enjoyment of reading, time spent reading for enjoyment, and diversity of texts read (Brozo et al., 2014). While gender differences are evident in all 65 countries participating in PISA, an in-depth review of five countries represented by the PISA/Progress in International Reading Literacy Study (PIRLS) Task Force by Brozo et al. (2014) found that girls had significantly higher reading engagement compared to boys. Thus, in Germany, Finland, Ireland, Korea, and the United States, girls were not only outperforming boys in reading, but they were also more engaged, and the gender discrepancies in engagement were increasing (Brozo et al., 2014). Because engagement in reading had a strong association with performance, it was a crucial point regarding male academic performance (Brozo et al., 2014).

Stoet and Geary (2015) analyzed PISA data from each year of administration, with the goal of determining a relationship between gender equality in the countries in which it is administered and results by gender. Two findings have implications for this study. The first related to the analysis of overall scores, rather than by content area. In 2009, based on overall scores, boys in 70% of the countries were significantly

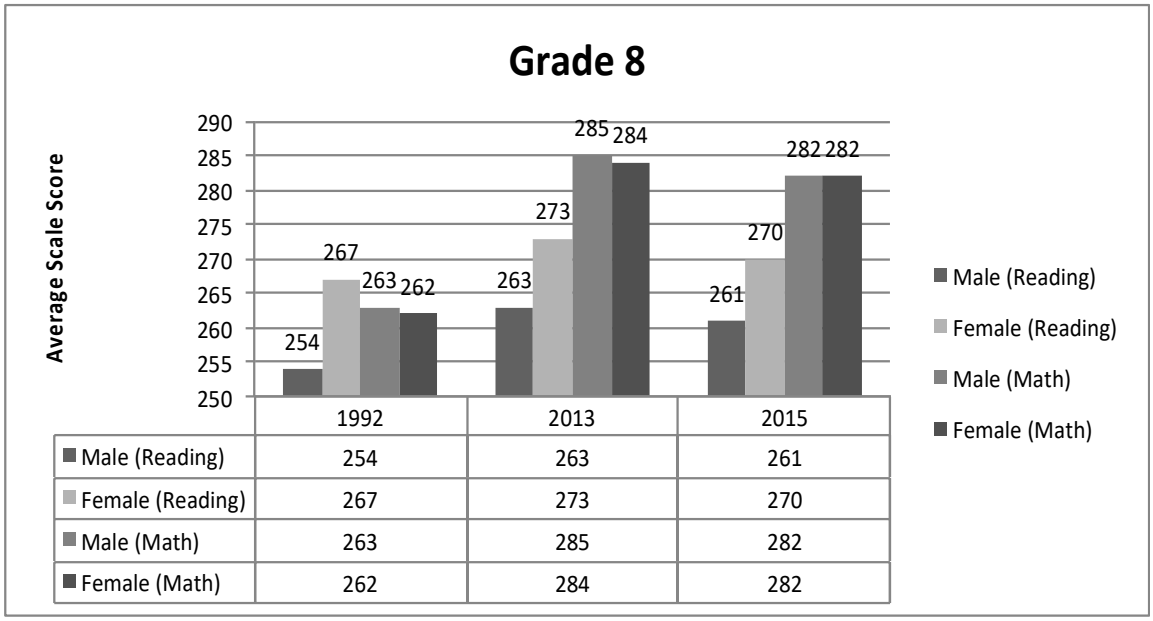
outperformed by their female peers (Stoet & Geary, 2015). Similar patterns existed in other years for which this information was available and reported in the same way. The second implication of the analysis conducted by Stoet and Geary (2015) related to the variability of the performance gap in each subject area. In each year that PISA was administered, girls had overall higher achievement, and the highest achieving boys showed higher individual performance, with a larger gap compared to at the other levels of performance. Thus, the achievement gap differs at both ends of the achievement spectrum. The authors contended that the focus on the math gap favoring males actually contributed to a lack of attention to the gap favoring females in reading and overall (Stoet & Geary, 2015).

NAEP. Analysis of National Assessment of Educational Progress (NAEP) results since 1990 indicated a similar pattern, in which females consistently outperform males in reading and perform at similar levels on assessments of math (Kena et al., 2016). Considering results in Grades 4 and 8, reading assessment results indicated that females have performed at higher levels than males since 1992, with little change in the performance gap. Thus, as indicated in Figures 1 and 2 (Kena et al., 2016), results from NAEP indicated a female advantage in reading and similar performance in math for males and females.



	1992	2013	2015
Male (Reading)	213	219	219
Female (Reading)	221	225	226
Male (Math)	214	242	241
Female (Math)	213	241	239

Figure 1. Average NAEP scores for Grade 4: Reading and math by gender.



	1992	2013	2015
Male (Reading)	254	263	261
Female (Reading)	267	273	270
Male (Math)	263	285	282
Female (Math)	262	284	282

Figure 2. Average NAEP scores for Grade 8: Reading and math by gender.

State assessments. State assessment data in the era of No Child Left Behind (NCLB) also indicated patterns of performance based on gender (Chudowsky & Chudowsky, 2010). In their 2010 report by the Center on Education Policy, the authors provided an analysis of trend lines based on nationwide NCLB accountability from 2002-

2008. NCLB did not hold states accountable for making Adequate Yearly Progress (AYP) in gender subgroups; nonetheless, gender performance data were disaggregated and reported (Chudowsky & Chudowsky, 2010). The authors found trends similar to those above using this longitudinal data set representing elementary, middle, and high school data. Specifically, there has been general parity between the genders in math, with no consistent gender gap in performance during this period (Chudowsky & Chudowsky, 2010). Median percentages at basic, proficient, and advanced levels were similar, with some small differences in individual states at each level.

In reading, however, the story is again different. Girls outperformed boys at the elementary, middle, and high level, with gaps exceeding ten percentage points in some states (Chudowsky & Chudowsky, 2010). According to the analysis provided by the authors, boys have narrowed the gap in reading since 2002 based on the NCLB percentage proficient indicator. However, average test scores, which measured improvement across the spectrum of achievement levels, demonstrated less progress. These scores were more meaningful and indicated that for as many states where the reading score achievement gap became greater, it also decreased in as many states (Chudowsky & Chudowsky, 2010).

Multiple Factors for Consideration

The standardized assessment scores indicated a general and irregular female advantage in reading and general parity in math. School level data showed underperformance in middle school for males, as indicated by lower grades, higher numbers of disciplinary referrals, and low levels of engagement. There were lasting effects of these levels of underperformance in middle school. Researchers have shown

the transition from elementary to middle school created additional stress and associated it with declines in motivation, academic achievement, and connections to school (Theriot & Dupper, 2010). Male students who underperformed in middle school did not gain the necessary learning skills. This results in decreased levels of motivation for involvement in academic activities, further resulting in decreased engagement in post-secondary education and decreased earning potential (Christofides, Hoy, & Yang, 2010; Jacob, 2002). The long-term influence of the discrepancies in school achievement can be seen in earnings potential, as the gap between those with advanced degrees has widened between 1991 and 2010, and may continue to widen over the next decades (Carlson & McChesney, 2014).

There were discrepancies in standardized test results; in some cases, these were narrowing and did not mirror the observed concerns in school performance. Thus, a more thorough review of school performance was essential to determine factors leading to the indicators of concern. The concerns related to middle school male achievement were complex, offering multiple pathways for influencing positive change and meeting the needs of the population of boys who were not engaging in their academic lives. Potential interventions could address school belonging, behavioral codes, or grading practices as a way to increase and improve performance, buy-in, and behavioral factors for middle school boys about whom there was a concern.

School belonging. A focus on school connectedness and belonging could have a positive impact on concerns about male progress in middle school. Booth and Girard (2014) described a lack of fit in teacher-student relationships as a partial explanation for increases in problematic behavior in eighth grade boys. The authors engaged in a study of

school climate and the characteristics within a school that influenced students and their perceptions of themselves and their abilities. Using a longitudinal data set for students in Grades 7 to 10 in one district ($N = 894$), they assessed three different school variables; school attitudes, school climate, and school connectedness. These variables were reviewed based on self-appraisals completed by students. In each variable, there were statistically significant differences in responses by gender with girls scoring each at a higher level (Booth & Girard, 2014). Thus, an investigation of factors influencing these indicators might lead to the identification of steps to increase male engagement.

Behavioral codes. As students transition to middle school, there were several components of school that change, one of which was the manner in which behavior and discipline are addressed. At the same time that students entered adolescence, desiring more autonomy, and shifting their focus to peer relationships, relationships with other adults became more punitive and restricting (Carolan et al., 2015). Behavioral expectations in middle school have a greater emphasis on control and discipline, which creates a developmental mismatch with the needs of students to experience autonomy (Carolan et al., 2015). Because behavioral data indicated a greater number of male disciplinary referrals, an understanding of ways to intervene and address behavioral expectations more positively and inclusively might have a lasting impact.

Grading practices. Grading practices in middle school can also have an impact on student self-efficacy, as these practices become stringent (Carolan et al., 2015). While the intent of grades is to represent student achievement, in practice grades often indicate a combination of a variety of factors, including achievement, ability, behavior, and effort (Randall & Engelhard, 2010). Each of these items is most certainly important to assess,

track, and provide information about. However, factors such as effort are difficult to measure accurately (Randall & Engelhard, 2010). Thus, a review of grading practices either to isolate the behavioral from the academic components or to define the components more clearly that might influence male performance. For example, if a student understands the math content but does not complete his homework regularly, his or her grade may be low. However, this indication of low performance is not accurate and requires a better-defined system of grade reporting. Consideration of a different way to report progress might influence the grades that the students of concern are earning.

Motivation

The need for an indicator that was student-centered emerged, leading to an in-depth study of motivation and what might influence the motivation of middle school males. Unlike previously discussed areas for focus such as grading practices, school belonging, and behavioral codes, this student-centered indicator offers several benefits. A study of motivation allows for an increased understanding of why students achieve and behave as they do, as well as an opportunity to understand the processes of self-regulation that might influence achievement differences among students (Schunk, 2005). These processes of self-regulation can mediate the relationship between learners and their environment, with a potential impact on achievement. In selecting to study and focus on motivation, there is no denial of the importance of the other factors. Motivation is the factor that can and does reside solely in the student, and can thus be influenced by the student. Although there are certainly interactions between contextual and personal factors, the beliefs that a student brings to the classroom will exist regardless of the grading system, the disciplinary strategy, or the welcoming nature of the school. These

social environmental factors will always be seen through the psychology of the student (Blackwell, Trzesniewski, & Dweck, 2007).

The study and understanding of motivation was essential to an understanding of the achievement of middle school boys. Since standardized achievement results do not indicate a clear, consistent, overwhelming advantage to female students, the concern may not be one of ability. Some define motivation as "an internal state that instigates, directs, and maintains behavior" (Lee, McInerney, Liem, & Ortiga, 2010, p. 264), while Duckworth et al. (2015) explained it as "a particular stage in the generation of goal directed action… which is the initial stage of selecting goals and committing to them on the basis of their expected value" (p. 14). The discussion of motivation or students lacking or possessing adequate motivation requires some operationalization, as do the recognition and understanding of the various factors that influence and are impacted by these levels of motivation (Murphy & Alexander, 2000). One commonality among definitions is that motivation impacts action. Thus, the reasons for lack of action in accomplishing classwork may have roots in a lack of motivation.

Motivation is not static, and levels of motivations change as students move through middle school. Murphy and Alexander (2000) conducted a review of motivation literature, in which 68 articles were reviewed within parameters, including a focus on academic learning. The majority of research was conducted with undergraduate and middle school students, explaining that this reflected these ages as areas of need. Specifically, middle school has been identified by qualitative changes in interest in school and motivation for learning (Murphy & Alexander, 2000). Furthermore, there seems to be a shift at this point from an intrinsic to an extrinsic orientation toward school

(Murphy & Alexander, 2000). Thus, the patterns in this review indicate and reinforce a need to study the role and aspects of motivation in middle school.

Further factors related to the structures of middle school may influence motivation as well. Students in middle school may encounter a more heavily ability-focused learning environment, and beginning around Grade 5 to note differentiated levels of ability (Bong, 2009). Middle schools also tend to emphasize student performance and whole-class instruction, thus increasing academic pressures (Theriot & Dupper, 2010). Students begin to perceive more emphasis on social comparison and evaluation, and an emphasis on grades and relative ability (Bong, 2009). This has the potential to influence the type of achievement goals that students work toward, which has the potential to influence motivation. One must consider from a developmental perspective the factors that may shift as a student moves through school to understand changes in achievement goals (Shim, Ryan, & Anderson, 2008).

Achievement Goal Theory

Achievement goal theory further deconstructs a discussion of motivation by defining various factors that influence motivation. Achievement goal theory has at its roots the work of several researchers in the early 1980's, who investigated student engagement and the quality of that engagement (Ames, 1984; Dweck, 1986; Maehr, 1984; Nicholls, 1984). It is the meaning or purpose for engagement in academic behavior, a student's achievement goal, which affects their level of motivation (Kaplan, Middleton, Urdan & Midgley, 2002). Each researcher above, though the focus of his or her studies differed, came to this similar conclusion that an achievement goal was the "why" of student engagement in a particular academic behavior (Midgley, 2002). According to

Ames (1992), goals distinguish a learner's definition of success and ways of thinking about how to approach learning tasks. Achievement goal theory thus provides an avenue for exploration of the factors influencing motivation, and the manner in which these factors interact to increase opportunities for mastery learning.

Research on achievement goal theory has evolved over the past several decades into a more complete and nuanced understanding of goal types and their impact on academic achievement (Figure 3). The constructs that have emerged explain both the situational and personal components of achievement goals (Kaplan, Middleton et al., 2002). Researchers began by identifying two types of goals, mastery and performance (Ames, 1992), learning and performance (Dweck & Leggett, 1988) or task involvement and ego involvement (Maehr & Nicholls, as cited in Ames, 1992).

Mastery goals presume an adaptive nature, one in which the student is oriented toward learning and understanding, and mastering challenges (Bong, 2009). In pursuing a mastery goal, a student focuses on the task, wanting to master the material or skill and advance their learning (Kaplan, Middleton et al., 2002). Research indicates that mastery goals are strong predictors of performance on achievement tests, GPA, and using deeper learning strategies (Theis & Fischer, 2017).

Performance goals represent a more maladaptive view, in which the student works to validate their abilities and intellectual superiority publicly (Bong, 2009). A performance goal focuses on the self, on avoidance of looking incompetent, and a desire to achieve with as little effort as possible (Kaplan, Middleton et al., 2002). Performance goals can also be distinguished in that they are self –referenced, with no set standard indicating level of achievement (Kolovelonis, Goudas, & Dermitzaki, 2011).

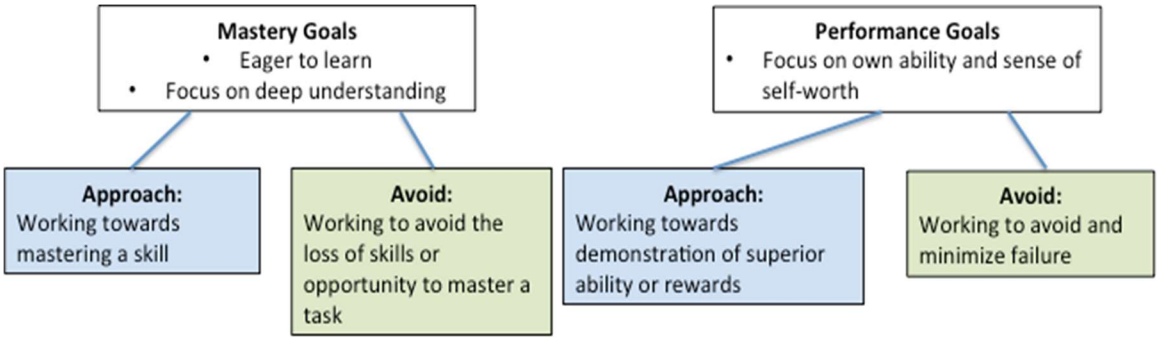


Figure 3. Achievement goal theory definitions (Dekker et al., 2013; Ames, 1992; Midgley, 2002).

While some researchers have focused on simply the benefits of mastery over performance goals (Ames & Archer, 1988; Hidi & Harackiewicz, 2000; Kaplan, Gheen, & Midgley, 2002; Kenney-Benson et al., 2006), others have explored the focus into a distinction between approach and avoidance goals (Dekker et al., 2013; Elliot & Fryer, 2008; Shim et al., 2008). Thus, regardless of whether focusing on mastering material or performance, there is a distinction in that it is beneficial to approach or work toward something as opposed to working to avoid something (Dekker et al., 2013; Shim et al., 2008). Approach is a positive possibility, moving toward a potential success, whereas avoid is a negative possibility, moving away from a potential failure (Murayama et al., 2011). Performance-avoid goals have been negatively associated with using learning strategies, and positively with low grades, while the research on performance approach goals is more mixed (Theis & Fischer, 2017)

Researchers refer to the conceptualization of purposes for engagement as related to criteria used for judging performance as the 2 X 2-achievement goal framework (Bong, 2009). As one of the first studies investigating this framework with students younger than college-aged, Bong (2009) investigated how meaningful the framework was for younger children, including adding to the understanding of ways this orientation might change for

students as they age through elementary and middle school. With a sample of elementary (n = 647) and middle school (n = 500) students from two schools in Korea, Bong measured achievement goals, math performance, and math self-efficacy at all grades, help seeking avoidance in Grades 3 to 9, and cognitive and self-regulatory strategy use at the middle school grades. The analysis revealed several findings that furthered the understanding of achievement goals with school-age children, as well as ways these might change as students develop (Bong, 2009).

Most relevant to this study were the implications specific to the goal orientations held by students, the relationship with self-efficacy and performance, and the manner in which these evolved as students moved through middle school. Using the middle school sample, the author found a mastery-approach goal positively correlated with math performance, while a performance-avoidance goal was negatively correlated (Bong, 2009). Furthermore, although a performance-approach goal was significantly positively correlated with math performance, it was at a smaller magnitude compared to the mastery approach goal (Bong, 2009).

There was a clear relationship between engagement in academic activities and academic goals. If middle school boys disengaged from academic behavior, investigation of achievement goal theory might help to explain and address the components of disengagement. Engagement is multidimensional and occurs when one is deeply involved in an activity (Muenks, Wigfield, Yang, & O'Neal, 2016). The disengagement of the middle school boys on which the study focused is primarily a behavioral disengagement as defined by a framework described by Fredericks et al. (2004). This behavioral disengagement is focused on participation in academic activities or, in this case, a lack of

participation, and has crucial implications for academic achievement (Fredericks et al., 2004). According to Muenks et al. (2016), because behavioral engagement includes the exertion of effort, persistence, and attention, an opting out of achievement activities is a marker for disengagement. A student, who is disengaged and opts out of achievement activities, does not engage in academic behaviors and most likely does not have an academic goal (Muenks et al., 2016).

An understanding of engagement perhaps also encompasses cognitive engagement, as the student who does not engage in achievement activities, does not strive for learning and does not focus on mastering a task (Fredericks et al., 2004). Thus, a mastery goal delineating what understanding a student wants to gain is also not present. In delineating their framework, which in turn instigated other studies (Boekaerts, 2016; Muenks et al., 2016), Fredericks et al. (2004) commented on a need for an integration of the understanding of cognitive engagement with understandings of investment as described by motivational literature. Goal theory provides a mechanism for informing a deeper understanding of investment in learning (Fredericks et al., 2004).

Classroom goal structures. Interactions occur between individual student approaches to learning and the culture and norms in specific classrooms. Throughout the literature, there is a distinction between the goals each student holds for himself or herself, or their goal orientation, and the goal structures within each classroom (Ames, 1992; Ames & Archer, 1988; Kaplan et al., 2002; Pintrich, 2003). Student goal orientations, or personal achievement goals, are an individual level construct (Murayama & Elliott, 2009). The design and implementation of instruction determines the goal structure of the classroom.

Both personal and classroom goals can be classified as mastery or performance based. Goal structures represent these mastery or performance emphases and can be present at either the classroom or the school level (Kaplan, Middleton et al., 2002). In a seminal work regarding this distinction, Ames (1992) described goals as part of the broader context of learning environments and defined those classroom structures that teachers can design to achieve desired goals. These include the design of tasks and learning activities that give students control over process or product, evaluation processes not focused on social comparison, and the level of autonomy and or perception of teacher control (Ames, 1992). Wolters (2004) similarly described prevailing instructional practices such as types of tasks, grading procedures, level of autonomy, and grouping practices as determining a classroom's perceived goal structure. Teachers may indicate a performance goal structure by displaying only "the best" work in the classroom, by emphasizing grades, or by publicly rank-ordering student performance (Kaplan, Middleton et al., 2002). A performance goal structure may communicate success as linked to extrinsic rewards and performing better compared to others (Wolters, 2004).

Mastery structures are conveyed when teachers emphasize the importance of learning and effort and encourage students to explore more deeply topics they find interesting (Kaplan, Middleton et al., 2002). When students perceive a mastery goal structure in the classroom, they are more likely to utilize effective learning strategies and preferences for challenging tasks (Ames & Archer, 1988). This, however, assumes that the student has a learning strategy to use. Ames and Archer (1988) conducted their study with students in a junior high school for academically talented students, as measured by an 80th percentile or above score on an admissions assessment. Therefore, these students

may have demonstrated greater knowledge of learning strategies than might be found in more academically diverse samples. Understanding which learning strategies may be available and how to use these is a necessary precursor for the successful use of strategies. This metacognitive process relates to motivations for students as students understand and act on what they know, how they think, and when and how to apply strategies (Throndsen, 2011).

Wolters (2004) investigated the interaction between various components of achievement goal theory by surveying 525 junior high school students about the classroom goal structures they perceived, personal motivational beliefs, engagement, and use of strategies within their math classes. Results indicated that the perceived classroom mastery goal structure was a significant predictor of personal mastery orientation, performance-avoidance orientation, and self-efficacy (Wolters, 2004). Thus, students in classrooms in which the structure emphasized effort and learning adopted avoidance goals at a lower rate and conveyed greater confidence in their abilities. Wolters (2004) also found that students who had previously performed at high levels on standardized assessments were also more likely to adopt a mastery goal orientation, had higher self-efficacy, and maintained less of a focus on performance-avoid goals. Conversely, students who perceived the classroom goal structure as performance based were more likely to adopt performance goals, both approach and avoid (Wolters, 2004).

Social classroom goal structures. The importance of avoid and approach type goals have also been linked to social goals in a study by Shim, Cho, and Wang (2013), which determined a positive relationship between social development goals and perceived classroom goal structure. Social goals relate to the manner in which a student

focuses on what they want to achieve in peer interactions, thus determining their approach and reasons for social interactions (Shim et al., 2013). As a parallel to academic approach and avoidance goal orientations, students may hold a social development, social demonstration-approach, or social demonstration-avoid orientation (Shim et al., 2013). Social demonstration goals are those in which the individual either works to demonstrate social competence (approach) or hide their lack of social competence (avoid). Either way, a primary goal of each is to avoid looking "uncool," thus leading to an avoidance of effort in academic work (Shim et al., 2013). The reason for the disruptive behavior, especially in middle school classroom, is an essential difference. For a student with an approach type goal, this serves as a way to maintain social status. However, a student with an avoid orientation is more likely to attempt to remain invisible in class (Shim et al., 2013).

Shim et al. (2013) studied the relationship between these social goals held by students and the perceived classroom goal structures in two public middle schools in the Midwest with similar low-income communities (n = 373). Students were assessed based on their perception of classroom goal structures, social achievement goals, academic engagement, and social adjustment. The results provided information on the effects of social achievement goals on academic performance, as well as establishing a link between perceived classroom goal structure and social achievement goals (Shim et al., 2013). Students with social development goals enjoy school and learning more. Perceived classroom mastery goal structures positively predicted a social development goal and negatively predicted a demonstration-approach goal, while classroom performance goal structure positively predicted both social demonstration approach and avoidance goals. Therefore, the implications of perceived classroom goal structure on both social and

academic realms were important to consider in an investigation of students who demonstrate low motivation or engage in disruptive classroom behavior.

Goal orientation related to goal structure. Achievement goal theory emphasizes the relationship between classroom goal structures as perceived by students and teachers and student behavior (Kaplan, Gheen et al., 2002). The authors investigated potential connections between personal goals and classroom goal structures, based on the understanding that a student with a performance-avoid goal orientation may be more likely to engage in disruptive behavior as a way of protecting self-worth (Kaplan, Gheen et al., 2002). However, over and above personal goal orientations, a perception of classroom goal structures as either mastery or performance based may also influence the level of disruptive behavior in which students engage. Kaplan, Gheen et al. (2002) studied this link using surveys administered to students (n=507) about perceived goal structures, their personal achievement goals, and their involvement in disruptive behavior in ninth grade math classes. Teachers were also surveyed regarding goal related approaches to instruction (Kaplan, Gheen et al., 2002).

Using hierarchical linear modeling (HLM) to allow them to model individual and group relationships, the authors were able to account for similarities of students within the same classroom as well as the relationship of these similarities to the characteristics of the classroom (Kaplan, Gheen et al., 2002). The authors first determined the extent to which students' engagement in disruptive behavior and perceptions of classroom goal structure varied between classrooms. Results indicated that 20% of the variance in disruptive behavior depended on the classroom in which they were situated and that their

perceptions of classroom goal structures varied significantly between classrooms (Kaplan, Gheen et al., 2002).

Using four models, the authors also analyzed the extent to which student reports of classroom goal structure was related to disruptive behavior over and above personal goal orientations (Kaplan, Gheen et al., 2002). They found that reports of disruptive behavior were significantly related to gender and that the difference in disruptive behavior between classrooms was significant after taking individual student variables into account (Kaplan, Gheen et al., 2002). Additionally, disruptive behavior was significantly negatively related to perceptions of mastery goal structure in the classroom and positively related to performance approach goal structures over and above students' personal goal orientations. Thus, the authors positively associated disruptive behavior with being a boy and perceptions of a performance approach or avoidance of classroom structure (Kaplan, Gheen et al., 2002). This finding reinforced the importance of identifying classroom structures that led to positive connections for students, in which the focus of the classroom was on a mastery goal structure and there were likely less disruptive behaviors (Kaplan, Gheen et al., 2002). Nevertheless, influencing personal characteristics can also decrease these behaviors.

Personal Characteristics

While the environment within which a student learns was important, one must also evaluate the personal characteristics that a student brings to the classroom. These include their beliefs about their own competence, their investment in and use of learning strategies, and their personal goal orientation (Cleary, 2009).

Personal goal orientations. A separate body of research exists regarding the goal orientation that students bring with them into the classroom. Differences in the goal orientations and goal preferences between genders have been demonstrated (Dekker et al., 2013; Kenney-Benson et al., 2006). In a longitudinal study examining how students approach schoolwork, Kenney-Benson et al. (2006) determined links between the goal approaches of boys and girls and their classroom behaviors. Students were surveyed in fifth and seventh grades using the Patterns of Adaptive Learning Survey (PALS; Midgley et al., as cited in Kenney-Benson et al., 2006). The authors also analyzed achievement test scores, class grades, aspects of learning strategies, and levels of disruptive behavior. In a finding relevant to this dissertation, girls were more likely to adopt mastery over performance goals (Kenney-Benson et al., 2006).

A second finding closely related to the concerns of the present study relates to disruptive classroom behavior. Girls tended to be less disruptive in the classroom, which linked to their positive use of learning strategies. Boys, on the other hand, tended to be disruptive and demonstrated less use of positive learning strategies over time (Kenney-Benson et al., 2006). Students who engage in using effortful learning strategies attempt to plan for and regulate study activities (Kenney-Benson et al., 2006).

Though their findings were similar, Dekker at al. (2013) utilized a different method. Concerned about biases in questionnaires, the researchers provided a sample of 910 students in Grades 5 to 12 with vignettes describing the various goal orientations. Students were asked to identify which best matched their personal orientation (Dekker et al., 2013). In both the 10 to 14 and the 14 to 19 years age group, students with mastery goal orientations were most prevalent. In the younger age group, approximately half of

the students indicated this orientation (male = 47%, female = 59%). The numbers were slightly lower in the older age group, with 32% of boys and 39% of girls indicating mastery orientation. Additionally, in the older age group there were a higher percentage of students indicating a work-avoidant orientation, which was described as "doing the least amount of work possible" and a "lack of motivation to work hard" (Dekker et al., 2013, p. 197). In both age groups, the percentages of females with mastery approach goals were higher, as well as the percentage of males identified with the work-avoidant characteristics. Thus, while the prevalence of mastery goals decrease between both genders as students age, the percentage of work-avoidant males increases at the same time (Dekker et al., 2013). The sample in this study was drawn on a voluntary basis, which could result in an underestimation of work-avoidant tendencies. In addition, the authors identified the interaction of goal orientations and classroom factors as an area for additional study, while recognizing personal components as essential (Dekker et al., 2013). Importantly, the similar findings by Dekker et al. (2013) and Kenney-Benson et al. (2006), despite differing methods, indicated the efficacy of the findings.

Theis and Fischer (2017) studied whether the goal orientations of students changed over time as students moved through middle school. The authors conducted a longitudinal study to investigate the development of achievement goals through middle school, especially as related to gender. Beginning with German students in Grade 5 who were followed to Grade 7 and Grade 9 (n = 6853), achievement goals were assessed several times using self-report scales while controlling for sex, Socioeconomic Status (SES), highest track of secondary school, and migration background (Theis & Fischer, 2017). Girls reported higher levels of mastery goals in Grade 5, and these levels

decreased at a lesser rate compared to the boys through middle school (Theis & Fischer, 2017). For both groups, the decline was greater between Grade 5 and Grade 7 than between Grade 7 and Grade 9. If mastery goals predict achievement and use of learning strategies, then it is likely that the decrease in mastery goal orientation influences achievement negatively throughout middle school (Theis & Fischer, 2017).

In their study of the relationship of cognitive self-regulation (CSR) to school functioning, Matthews, Marulis, and Williford (2014) identified differences in school functioning as related to CSR. The authors found that boys who demonstrated the skills associated with CSR, including attentiveness, persistence, and an ability to regulate, might defy teacher expectations and thus earn favor from their teachers. Conversely, boys with underdeveloped CSR might face teachers who were less forgiving of their behaviors, and thus academic and social challenges in school (Matthews et al., 2014).

Self-efficacy. The way that a student feels about their ability in an area relates to their achievement in that area as well as their goal orientation. In the study mentioned above involving Korean schoolchildren in Grades 1 through 9, Bong (2009) found a significant relationship between self-efficacy and math performance, and this relationship grew stronger as the students aged. There was also a positive correlation between mastery-approach goals and self-efficacy that was statistically significant in all age groups, as well as with strategy use in the middle school sample (Bong, 2009). Thus, a student who has high self-efficacy and a mastery-approach goal orientation is more likely to use effective learning strategies and perform at higher levels.

Throndsen (2011) studied the strategy use of primary students in solving simple arithmetic problems. Using effective strategies and the metacognitive component of

selecting most effective strategies were both essential components of self-regulation. Additionally, the author examined the relationship of self-efficacy to the strategy use demonstrated by 27-year two students. Standardized achievement tests were used to measure achievement, and qualitative methods such as think-alouds and structured interviews were used to assess metacognition, strategy use, and motivation (Throndsen, 2011). Differences in strategy used were found among the lowest and highest achieving groups; these differences might have been affected by the motivational beliefs held by the students in each group. The expectations for success evidenced by students also differed similarly, thus linking self-efficacy, strategy use, and achievement (Throndsen, 2011). Although causality cannot be determined, the author indicated that the results reinforced the need for cognitive, metacognitive, and motivational aspects of self-regulation to all occur as part of mathematics instruction.

As a factor related to motivation, the manner in which students judge themselves as capable, or self-efficacy, plays a role in academic achievement (Zuffiano et al., 2013). With a sample of 170 students in eighth grade, Zuffiano et al. (2013) studied the personal and social determinants of academic achievement related explicitly to self-efficacy beliefs in self-regulated learning (SESRL). Their work was based on the understanding that students with high levels of self-efficacy are more confident in their abilities to meet requirements, persistent, organized, and do not get discouraged (Zuffiano et al., 2013). Using measures of intelligence, personality traits, self-esteem, SESRL, SES, and academic achievement, the authors found that the beliefs students hold about their ability to regulate their learning was the most significant predictor of school success behind only prior academic achievement. This previous academic achievement and the manner in

which it influences mastery beliefs inform SESRL and future academic performance (Zuffiano et al., 2013). Most importantly, the work of social cognitive theorists, such as Bandura (1997), have demonstrated that self-efficacy can be fostered and improved.

Self-regulation. Self-efficacy is a precursor to, but not enough, for students to engage in the processes of self-regulation. Pintrich (2000) defined self-regulation as "an active, constructive process in which learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided by their goals and the contextual features in the environment" (p. 453). Based on Vygotsky's (1978) theory that development occurs through the gradual internalization of social activities, self-regulation is developed by children as they interact with others who model these strategies for them until students can engage in these practices on their own (Kleitman & Gibson, 2011). There is variation concerning the levels at which students effectively engage in the strategies of self-regulation, based on the complexity of components on which successful self-regulation is based. Most relevant perhaps is that students with mastery goals have been shown to use cognitive and metacognitive strategies more effectively, as well as to attribute success to effort and strategy use (Kaplan, Middleton et al., 2002). Therefore, there was a connection between the personal goal orientations that students had, their ability to self-regulate, and the behaviors demonstrated in the classroom.

Kenney-Benson et al. (2006) assessed both self-regulated learning and lack of persistence as they investigated the extent to which students planned, monitored, and regulated their classwork. In fact, the authors found that while there was no female advantage in self-efficacy, girls did tend to use increased learning strategies over time.

This use of strategies was linked to increased achievement as well (Kenney-Benson et al., 2006). Thus, even if self-efficacy is similar between the genders, the level at which students engage in using self-regulated learning strategies has been shown to differ.

Linking Behaviors to Learning Strategies

The evidence from standardized assessments of learning indicated that the skills and abilities of a subgroup of learners might not explain their achievements based on school-level measures, such as grades and classroom success. If this was the case, then self-regulation of motivational processes related to goal orientation might provide an explanation and a way to inform better outcomes (Schunk, 2005).

Relationship to learning strategies. A mastery goal orientation relates to students' self-control in the classroom, their volition, and their self-regulation. According to Ames (1992), a mastery goal orientation increases time on task, persistence, and engagement with learning. Goal orientations, which were a central reason for task engagement, help to determine why students engaged in the necessary academic behaviors (Schunk, 2005). Students who did not engage in and use learning strategies might find ways to avoid this engagement. Additionally, for students with performance-avoid goal orientations, there was a desire to avoid looking incompetent. These avoidance behaviors might include self-handicapping.

Self-handicapping. Self-handicapping refers to an active process in which the reason for the action is to provide an excuse or reason for poor performance (Urdan et al., 2002). Students engage in self-handicapping behaviors in situations where they actively want to create a reason for a potential lack of success (Urdan et al., 2002). For example, a student might not study for an exam, procrastinate, or deliberately stay up late the night

before an exam to have a reason for a poor result (Urdan et al., 2002). It will be important to determine what strategies students might use when they perceive they are being evaluated relative to others that might be self-handicapping, and to determine why some students engage in these behaviors (Midgley and Urdan, 1995). Students who engage in these behaviors may try to make it appear as if they do not care about the results. However, the opposite is true, as self-handicapping tends to occur in situations in which the task is considered important and relevant (Urdan et al., 2002).

One method of self-handicapping in which students engage is procrastination. Although not operationalized by the author, procrastination can be defined simply as "the tendency to postpone that which is necessary to reach some goal" (Lay, 1986, p. 492). In a study of suburban junior high school students (n = 525), students completed self-report questionnaires about their perceptions of the goal structures in their math classrooms, their personal motivational beliefs, motivational engagement, and strategy use (Wolters, 2004). Also collected were their math grades. Therefore, Wolters (2004) evaluated relationships between goal structures and use of cognitive and metacognitive strategies, as well as the between student goals and the same.

As related to self-handicapping, Wolters (2004) found that a performance-approach structure in math classrooms was a significant predictor of low levels of persistence and procrastination. Thus, students who focused on looking competent were more likely to give up when the work was too difficult, or even put off starting work that they were uncertain about (Wolters, 2004). Additionally, a mastery orientation was predicted by prior achievement and a mastery structure in the classroom. Students who perceived a mastery structure in the classroom and held a personal mastery orientation

were more likely to report metacognitive strategy use. Those who held performance orientations and wanted to avoid perceptions of incompetence reported less frequent strategy use and a pattern of disengagement from challenging tasks (Wolters, 2004).

Further avoidance behaviors might be indicated through the level at which students reported they engaged in disruptive behaviors and any correlation that existed with school disciplinary data. Avoidance behaviors indicated a purposeful action in which students engaged to avoid the appearance of inability or failure (Urdan et al., 2002). In a study with a small sample, Turtura, Anderson, and Boyd (2014) focused on behaviors that were maintained by avoidance of academic tasks. The disruptive behaviors in which students in this study were engaged included talking out of turn, lack of work completion, and making noises, and each served to allow the student to avoid engaging in the academic task at hand (Turtura et al., 2014). While not all disruptive behaviors derive from avoidance, patterns may emerge that indicate some students have made conscious decisions about their behaviors for that purpose.

Gender and Learning Strategies

The pattern of classroom performance and behavioral concerns for male middle school students requires an understanding of the roots of these concerns, including an understanding of any inherent differences between the genders that may be biological in nature. One must understand whether males and females experience the education process differently, thus creating these indicators of concern for males. Finally, an understanding of why some male middle school students indicate concerns while others seem to perform appropriately will inform any potential interventions. A review of school

readiness, progress through school, and factors specific to middle school may provide some insight.

Learning strategies and grades. A component of school achievement related to using learning strategies measured by class grades. Duckworth and Seligman (2006) conducted a study with students in eighth grade at a socioeconomically and ethnically diverse urban magnet school (n = 140). The researchers gathered self-discipline information through student, teacher, and parent surveys regarding behavior inhibition, controlling impulsivity, and rule following. Achievement measures included standardized achievement test scores as well as classroom grades and attendance data. The authors found differences in the level of self-discipline that girls tend to possess and connected that with their maintenance of better classroom grades (Duckworth & Seligman, 2006). The girls earned higher grades compared to their male counterparts based on their GPAs, and the gender difference based on GPA was more than twice that found based on achievement scores (Duckworth & Seligman, 2006). Classroom grades might measure more than achievement, and the learning strategies utilized in the classroom could influence measures of school performance (Kenney-Benson et al., 2006).

School readiness and early education. The differences found in classroom grades and performance, as related to self-discipline and learning strategy use, indicated a need to investigate the possible roots of these differences. A review of learning strategies and self-regulation at the pre and early years of schooling provided some context for a similar focus in the middle school years, as well as a broader understanding of middle school student backgrounds and needs.

Matthews, Ponitz, and Morrison (2009) conducted a study of gender differences in self-regulation in the fall and spring of kindergarten. In this study, the authors utilized five indicators of early achievement, as well as two indicators of behavioral self-regulation. Defining behavioral self-regulation as dependent on cognitive skills, and including a child's ability to monitor, inhibit, and direct attention, the authors focused on the overt behaviors of students in the classroom (Matthews et al., 2009). In highlighting task behaviors, the authors argued that strong behavioral regulation early in school predicts increased school engagement, motivation, and use of positive learning strategies, which could lead to academic success. Their work adds to the research base in that it focuses on more than the connection between gender and literacy skills, looking to discover the relationship between gender, self-regulation, and academic achievement instead (Matthews et al., 2009). Both the observational and teacher-reported measures of self-regulation indicated gender differences favoring girls in both fall and spring (Matthews et al., 2009). Despite these differences, there were no significant gender differences on the academic measures at the end of the kindergarten year (Matthews et al., 2009).

Interestingly, Matthews et al. (2009) found that girls' scores on the measures of self-regulation, both teacher-reported and observed through the classroom task, were more clustered. The boys' results showed more variability, with a more substantial number of low performers compared to the girls. Not only did the bottom 10% of boys score lower than the bottom 10% of girls, but they also showed fewer gains from fall to spring (Matthews et al., 2009).

Similarly, another study examined the way in which students' approach to learning (ATL) from an early age may provide accumulating advantages over time. ATL is a reflection of self-regulation, encompassing management of one's behavior and attention, and includes behaviors such as completing seatwork at one's desk and focusing on lessons despite distractions (Li-Grining, Maldonado-Carreno, Votruba-Drzal, & Haas, 2010). In a longitudinal study, the authors examined whether ATL explained differences in achievement throughout elementary school. Specifically, they looked at math and reading achievement at K, 1, 3, and 5 with a sample size of over 10,000 students (N=10,666). What is most informative about this study relates to the protective nature of ATL. The authors used individual growth curve modeling, allowing them to follow different academic trajectories for students after kindergarten (Li-Grining et al., 2010). The results indicated that children with better ATL experienced greater rates of growth than those with less adaptive ATL, and these benefits increased throughout elementary school. As related to gender, the authors also found that the relationship between ATL and academic trajectories varied by gender (Li-Grining et al., 2010). Girls with high ATL experienced greater benefits in math, while boys yielded more benefits in literacy by the end of fifth grade. These results may indicate that even when the subject matter is of less interest, math to girls and literacy to boys, high ATL allows students to self-regulate and engage in the necessary tasks anyway (Li-Grining et al., 2010). Thus, self-regulation skills might influence motivation despite topics that are uninteresting to students, an inevitability throughout an academic career.

There is some question from early childhood as to the direction of causality. Stipek, Newton, and Chudgar (2010) designed a study to determine the degree to which

learning-related behavior predicted literacy achievement in later grades as well as the degree to which literacy achievement predicted learning-related behaviors. The authors followed a sample of low-income students from Kindergarten through Grade 5. Based on their analysis, they found that girls were rated higher for learning behavior than boys at all levels assessed and that students in K-1 rated higher compared to those in both Grade 3 and Grade 5 (Stipek et al., 2010). Positive learning behaviors promoted literacy achievement in later grades at each juncture in the study, above the effects of prior literacy knowledge (Stipek et al., 2010). The authors conclude that when girls begin school with better learning behaviors, this may lead to positive reinforcement and treatment by teachers, which makes school generally better for girls. The authors suggest that future research assess the different independent measures of self-regulated learning, to determine which components might most closely link to learning gains (Stipek et al., 2010).

There is a need to move beyond the substantiation of gender differences, to an understanding of how those processes develop and by extension, a way in which to address the differences. Because of the links to academic achievement found in early education, the skills of self-regulation "have become regarded as bedrock skills" for school readiness, upon which academic success is built (Matthews et al., 2014, p. 128). With a focus on cognitive self-regulation (CSR), the regulation of attention and strategy selection to accomplish tasks, the authors examine the relationship with CSR and gender differences in late childhood. Notable about this study was the author's conceptualization of school functioning to include grades, social, and behavioral factors, as well as standardized measures in fifth grade (Matthews et al., 2014).

Using an additional precursor, the manner in which mothers interact with their children at 54 months, Matthews et al. (2014) investigated the relationship with CSR in third grade and academic functioning in fifth grade. School functioning and CSR were evaluated using teacher reports focused on grades, persistence, productivity, work completion, and social skillfulness. Results showed robust gender differences favoring girls in fifth grade in grades, work habits, and socio-developmental factors, with no gender differences on the standardized measures of reading and math (Matthews et al., 2014). While no differences were found in the relationship between mother-child interactions based on gender, there were differences in outcomes predicted by CSR in both third and fifth grade. Matthews et al. (2014) found that CSR was more predictive of school functioning for boys, leading to the idea those boys with underdeveloped CSR might have the most struggle. Implications of this were the need to focus specifically on those boys who struggled in this area, as teachers might be less forgiving of students who could not attend or complete their work in a classroom.

Conclusions

Based on the research above, there seems to be a discrepancy when students enter school between the learning-related behaviors used by students and their gender. There may be differences between goals that exist throughout school, that are reciprocal in nature, and that impact progress through school. At the middle school, aspects of gender and associated differences in learning strategies might co-exist with increased academic demands, adolescent needs for social connections, and disciplinary expectations to create differences that were more apparent.

This question of the measures important for success led to a concern about self-regulation in middle school, especially for a subgroup of male students. Studies of middle school achievement need to look beyond the standardized measures to other indicators of concern. For example, although the usefulness of grades is mixed, they are nonetheless important and have implications for students. More importantly, students need to be willing to be present in the classroom and engage in the academic experiences.

Research indicates a complex interaction and many linkages between goal orientations, motivation, self-regulation, and classroom behaviors. Within these complexities, some areas can be impacted and improved upon for students to influence outcomes positively. However, missing from the literature seems to be a relationship between goal orientation and avoidance behaviors, specifically disruptive behavior. Achievement goal theory researchers have often focused on achievement variables, such as grades or standardized assessments (Bong, 2009; Wolters, 2004; Zuffiano et al., 2013). Other researchers have utilized student self-reports of learning strategy use (Duckworth & Seligman, 2006; Wolters, 2004) or engagement in avoidance behaviors (Kaplan, Gheen et al., 2002; Kenney-Benson et al., 2006). However, another measure of avoidance can be found in rates of disruptive behavior as indicated by an external measure.

Instead of focusing on addressing specific disruptive behaviors, one might influence avoidance as a cause of the behavior through the framework of achievement goal theory and self-regulated learning. This study aimed to pull these components together and identify potential relationships between goal orientation and avoidance, as measured by self-reports, as well as external measures of discipline such as referral numbers. Further, the role of instruction in self-regulation and the included components

could provide a way to decrease these avoidance behaviors, specifically disruption, while helping students to become more mastery oriented.

Chapter 2: Assessing the Relationships Between Goals and Behaviors

A consideration of student motivation led to the emergence of achievement goal theory as the foundation of the study. However, it was not clear how the interaction between personal goal orientation, classroom goal structure, and engagement in self-handicapping or disruptive behavior influences male achievement in middle school. Therefore, one must determine further the combinations of factors that most influence the problem, and the areas in which there might be significant discrepancies between boys and girls. The ways in which students engage or disengage in instruction may be a result of their mastery or performance goal orientation. Therefore, a study was designed to assess middle school students' goal orientations, the extent to which students self-handicap or engage in disruptive behavior, and their perceptions of classroom goals structure. Taken together with grades, standardized assessment, and disciplinary referral data, this study provided a more clear understanding of how these indicators are connected.

Initial Review of Context

To identify the extent and detail of the problem in context, a needs assessment was conducted. This assessment allowed the researcher to gather data supporting the concerns related to male middle school performance in the specific context utilizing two specific and related data sources. An initial data review led to a noted concern. According to School Wide Information Systems (SWIS) data, boys have a larger number of disciplinary referrals and suspensions (JHMS, 2018c). A review of behavioral referrals across grade levels consistently showed a higher rate of male than female referrals. According to this data, the number of referrals per grade level increased as students

moved through middle school (Table 3). At all grades, males received more disciplinary referrals compared to females (JHMS, 2018c).

Table 3

Referral Data by Grade and Gender (2015-2016)

	Male		Female		Totals	
Grade	Referrals Earned	Percent of Males	Referrals Earned	Percent of Females	Referrals Earned	Percent of Total
5	37 (97%)	40%	1 (2%)	2%	38	20%
6	46 (70%)	25%	20 (30%)	19%	66	22%
7	55 (53%)	32%	49 (47%)	27%	104	30%
8	143(93%)	33%	11 (7%)	14%	154	24%

Note. Data gathered from September 1, 2015 through March 31, 2016.

School schedule and grade data indicated that boys made up a higher percentage of the Low Current Grades Report, which lists students who are at the D/F level in any class. As shown in Figure 4, a review of the Low Current Grades report for the first quarter of 2015 to 2016, 76% of the students listed with grades of D or F were male (JHMS, 2018b). For the second quarter, 74% of this list was made up of male students, and for the third quarter, 55% were male (JHMS, 2018b). Males were also scheduled for reading and writing intervention at higher rates (JHMS, 2018b). Data team minutes indicated that a greater number of interventions, 60% of the total referrals, were male (JHMS, 2018a).

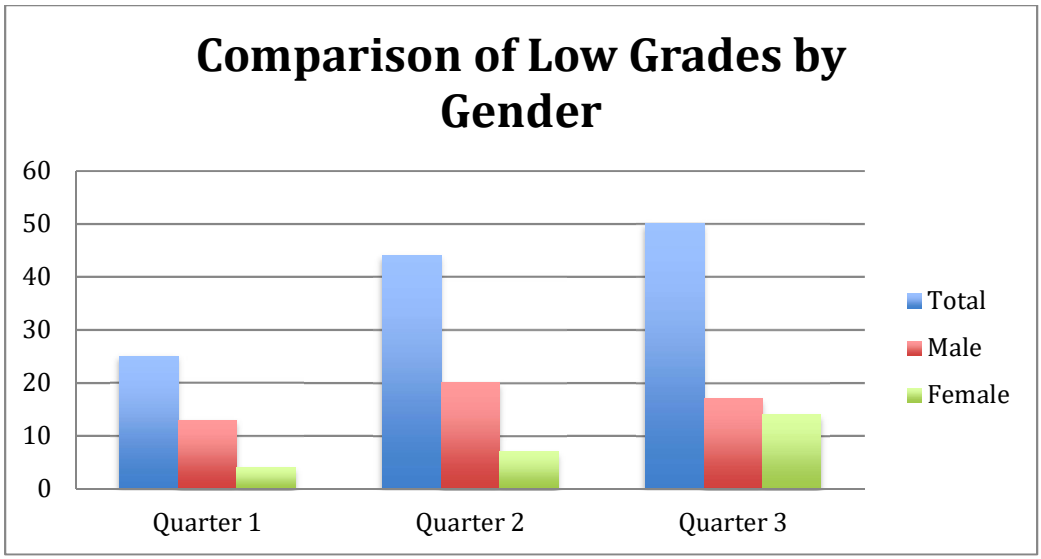


Figure 4. Low current grades by QuarterNote. Low grades include any grade in the D or F range.

Anecdotally, boys demonstrated less motivation and buy-in as shown by lack of homework completion, lack of engagement in class, and resistance to interventions. Teachers providing interventions reported male students who refused or hesitated to engage in lessons, needed reminders to attend, or arrived late and unprepared for intervention sessions. These factors were primarily anecdotal since individual classroom policies could impact homework completion rates and data. Classroom teachers approach homework differently, some offering choice about what students complete, and some may not record homework completion. Lack of engagement in class may be linked to behavioral referrals as manifested in class disruptions.

In reviewing these outcomes, it was apparent that there are multiple factors negatively influencing the achievement of males. This required investigation into classroom goal structures and the way in which the goal orientations or patterns of adaptive learning of students interact with goal structures within the classroom. A combination of certain factors may influence behaviors, using self-handicapping

strategies, and using various personal learning strategies. The influences on this problem of practice are many, and the understanding of the problem has multiple facets.

The problem manifests itself in the above ways and becomes more of a concern as students prepare to transition to the high school. Students need to be prepared for an increased workload and increased requirements that they independently maneuver these challenges. Those who have not developed the ability to manage their work independently, and for whom behaviors become a concern, may have difficulty as freshmen and beyond.

Initial Needs Assessment

The school performance and disciplinary data described above indicate discrepant results that may contribute to or indicate a problem. To determine the root or cause of the problem, and to answer the questions prompted by those indicators, further assessment and data analysis were required. There were some differences in ways the structures of the school or classroom influences male students. One must understand that this is not a matter of reviewing a deficit model, where male students are considered to have a missing set of skills. Rather, one must determine what learning patterns male students bring to the classroom and how that might interact with the classroom goal structure to create indicators of concern.

Some essential questions needed to be answered to narrow down the focus of the concern for intervention design focus. Preliminary research led to a needs assessment including two components. First, a review of relevant assessment and behavioral data were necessary, in part to assess performance on standardized assessments as it may or may not differ by gender. If standardized assessments did not demonstrate vast

discrepancies, then it was essential to determine the source of the discrepancies noted in other indicators. Data analysis was necessary to determine where patterns existed regarding grade level performance or specific indicators in which discrepancies might exist.

The second level of analysis included a survey of students, utilizing several scales of the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 2000). Surveys were conducted with students in Grades 5 to 8 at JHMS. Surveying both girls and boys assisted in determining whether and where there might be differences between the genders in terms of the combination of factors related to school performance. Students responded to questions about their personal goal orientations, perceptions of classroom goal structures, and engagement in disruptive and self-handicapping behaviors. These components were analyzed in conjunction with the initial school-level data to determine areas where significant discrepancies existed as analyzed by gender. The goal was to determine similarities and differences by grade and gender to allow a focused intervention and to determine whether the results included differences related to gender as a whole or by grade level. Further, a determination of where the results were more significant helped to define the causes of achievement discrepancies and point toward potential areas of intervention.

Methodology

The data collection for the needs assessment was two-pronged, utilizing pre-existing assessment and achievement data in addition to a survey of students completed in May-June of 2016. Each component and the results are described below.

Participants. Administrative data were initially collected for all students enrolled in Grades 5-8 at the school, except for three students who did not consent to participate. Although the total enrollment of the school at the time of administration was 473 students, after removing students who had not been enrolled for the entirety of both 2014 to 15 and 2015 to 2016, or who do not take district assessments, the total available sample for data review was 448 students, 236 male and 212 female. Further analysis was then conducted using components of PALS (Midgley et al., 2000), administered to students in Grades 5 to 8 in the final weeks of the 2015 to 2016 school year. The sample size was further reduced during the survey component of the needs assessment due to absences and incomplete responses.

The information letter and included consent were designed as a passive consent to increase participation, which led to completion of the survey by 89% of the students, representing 88% of the males and 91% of the females. Participation by grade is shown in Table 4. The data were analyzed as a whole and by grade level.

Table 4

Needs Assessment Survey Participation by Grade and Gender

	Number and% of completed surveys		
Grade	Total	Male	Female
5	88/95 (93%)	42/45 (93%)	46/50 (92%)
6	111/121 (92%)	55/ 61 (90%)	56/60 (93%)
7	105/112 (94%)	61/67 (91%)	44/45 (98%)
8	96/120 (80%)	49/63 (78%)	47/57 (82%)
Total	400/448 (89%)	207/236 (88%)	193/212 (91%)

Administrative data. The needs assessment was designed to determine further the relationship between the independent variable, gender, on school performance. Several measures, independent variables, were collected to provide a review of the levels

of achievement for students on standardized measures, district assessments, and classroom grades. Measures included the 2014-2015 Smarter Balanced Assessments (SBA) score in literacy, fall 2015-2016 writing post-assessment, quarter three English Language Arts (ELA) grades, fall Northwest Evaluation Association (NWEA, n.d.) Measures of Academic (MAP) reading assessment, and the number of referrals per student as of March 31 (JHMS, 2018b). The focus of the academic measures is the literacy component of each assessment.

Literacy was selected as a focus based on the higher prevalence of SRBI interventions for male students in reading and writing than in math, and a perception that male and female grades are more discrepant in English Language Arts (ELA) than in math. Males receive Tier 2 and Tier 3 interventions at higher rates in reading and writing than in math. Sixty percent of students assigned to literacy intervention were male, while math interventions were nearly evenly split, with males representing 51% of students receiving intervention (JHMS, 2018b). With an increase of reading and writing requirements in all content areas related to the implementation of Common Core State Standards (CCSS), there might have been greater impact for students with a real or perceived deficiency in this area. This might be outside of the scope of this study; nevertheless, it played a role in the decision to use ELA measures. Data were analyzed by grade level to provide options for comparison and to note any potential patterns.

Data utilized in the first level of analysis was pre-existing data collected for multiple purposes throughout the school year. Behavioral data collected using School Wide Information Systems (SWIS) were analyzed based on a report date of March 31, 2016 (JHMS, 2018c). Grade reports were printed from PowerSchool for each of the three

quarters of the 2015 to 2016 school year (JHMS, 2018b), although only Quarter 3 was used in the analysis of data. The NWEA (n.d.) MAP assessment web site provided data reports regarding these assessment results; SBA results were available on the state website, which were accessed through the school database (JHMS, 2018b). These data were gathered into one spreadsheet per grade level for analysis.

Measures for needs assessment. The PALS survey was selected based on its use in numerous previous studies (Midgley & Urdan, 1995; Shim et al., 2008). Several scales were used, including Personal Achievement Goal Orientations (14 items), Perceptions of Classroom Goal Structure (14 items), and components of Academic Related Perceptions, Beliefs, and Strategies including Academic Self-Handicapping Strategies (six items) and Disruptive Behavior (five items; Midgley et al., 2000). Each scale consisted of three to five similar statements to which the students indicated their response on a Likert scale of *1 to 5*, indicating that the statement *was not at all true (1), somewhat true (3),* or *mostly true (5)*. Student responses were then totaled by survey category for analysis.

***Personal achievement goal orientation*.** Scales included in the survey related to personal goal orientation included the revised version of the mastery, performance approach, and performance avoidance goal orientation items (Midgley et al., 2000). Goal orientations refer to the reasons students have for engaging in academic behavior. Students with a mastery goal orientation engage in adaptive patterns of learning, seek to extend mastery, and perceive learning as inherently interesting. As such, they could remain focused on the task. Items on this scale include "One of my goals in class is to learn as much as I can," and "It's important to me that I improve my skills this year" (Midgley et al., 2000, p. 20).

Students with a performance approach goal orientation focus on the self, and their purpose or goal is to demonstrate competence. Items on this scale include “It’s important to me that I look smart compared to others in my class” and “One of my goals is to show others that class work is easy for me” (Midgley et al., 2000, p. 2). While performance approach orientations have been associated with both adaptive and maladaptive learning patterns, performance avoid orientations have been associated with maladaptive patterns (Midgley et al., 2000). Students with performance avoid orientations also focus on the self, with the purpose of avoiding the demonstration of incompetence. Items on this scale include “One of my goals is to keep others from thinking I’m not smart in class,” and “It’s important to me that I don’t look stupid in class” (Midgley et al., 2000, p. 20).

***Perceptions of classroom goal structure*.** In addition to the goal orientations held by students, students also perceive classroom emphasis on reasons for engaging in academic work. These goal structures can also be characterized as mastery, performance approach, or performance avoidance oriented (Midgley et al., 2000). Scales were administered in the survey for each circumstance. Students were asked to respond to each specifically as related to their ILA class.

A classroom that is perceived as mastery goal oriented has as its focus the development of competence. Questions on this scale included "In our class, trying hard is very important," and "In our class, really understanding the material is the main goal" (Midgley et al., 2000, p. 20). Classrooms which students perceive as having performance approach goal structures focus the purpose of academic work on the demonstration of competence, including items, such as "In our class, getting good grades is the main goal" (Midgley et al., 2000, p. 20). Classrooms with performance avoid structures are perceived

to focus on the avoidance of incompetence, and the scale includes items, such as "In our class, it's important that you don't make mistakes in front of everyone," and "In our class, it's very important to avoid looking dumb" (Midgley et al., 2000, p. 20).

***Academic self-handicapping strategies*.** Students engage in self-handicapping strategies so that if their performance is low, the circumstances will be seen as the cause rather than their own low ability (Midgley et al., 2000). The items on this scale are designed to describe behavior that precedes and therefore undermines performance, including the behavior, the reason, and the timing (Urdan et al., 2002). For example, "Some students purposely don't try hard in class. Then if they don't do well, they can say it is because they didn't try. How true is this of you?" (Midgley et al., 2000, p. 20).

***Disruptive behavior*.** The items on the disruptive behavior scale refer to engagement in behaviors that disturb the classroom. Items on this scale include "I sometimes get in trouble with my teacher during class," and "I sometimes disturb the lesson that is going on in class" (Midgley et al., 2000, p. 20).

Data collection methods. Surveys were administered to students during an intervention period and were completed using a paper answer sheet. The researcher and one Assistant Principal administered the surveys. Directions were read aloud, and students completed the survey quietly and independently. Answer documents were scanned utilizing Remark software, and these were uploaded into Excel and SPSS for gathering and analysis.

Initial Summary of Results

The results indicated that discrepancies existed between male and female performance utilizing some of the selected indicators. Related to behavior, at each grade

level, male students receive more referrals and a higher percentage of the total referrals. As delineated in Table 3, a review of school-wide totals indicated that males accounted for 78% of the referrals earned from September 1, 2015 through March 31, 2016.

Analysis of referrals by grade revealed that males receive more disciplinary referrals than females, ranging from females receiving 2% of the referrals in fifth grade to 47% in seventh grade. Of note was that in seventh grade, where the difference between male (53%) and female (47%) percentages was smaller, a small group of females was responsible for a larger number of referrals. At this grade level, 13 females were responsible for 49 referrals, an average of 3.8 referrals per student. For males, 23 students were responsible for 55 referrals, an average of 2.4 referrals per student. The female numbers in 2015 to 2016 were an anomaly specific to that cohort. For example, in 2017 to 2018, 16 females were responsible for 20 referrals, with all but one earning only one or two. There were no females with over three referrals. Across all grades, in 2015 to 2016, 18 students had more than five referrals, 88% were male, and 11% were female. Thus, not only did male students earn more referrals compared to their female counterparts, but also a larger number of boys repeated behaviors.

Further review of school behavioral referral data demonstrated greater male tendencies to engage in avoidance behaviors than female (JHMS, 2018c). School referral data indicated that males received 78% of the total written referrals. Not only did this indicate higher rates of disciplinary concerns, but also further analysis showed a discrepancy concerning potential student tendencies to avoid by engaging in disruptive behaviors. With 56% of the total school referrals assigned by teachers in classroom settings, males received 79% of those referrals (JHMS, 2018c). As defined by school

PBIS descriptors, 65% of male classroom referrals were categorized as defiance, disrespect, noncompliance, or disruption (JHMS, 2018c; Todd et al., 2010). While females earned 73% of their referrals in those same categories, they received only 42 total referrals in classroom settings. Behaviors listed were primarily mild disruptive behaviors, including constant talking, throwing paper, walking around the classroom, talking out, and not following teacher directions (JHMS, 2018c). These percentages indicated that for both genders, behaviors described as avoidant were prevalent in classroom settings. However, the larger number of incidents makes the problem especially concerning for males. The impact of avoidance behaviors on class performance is significant and indicates a relationship between engagement in avoidance behaviors and classroom performance.

To determine patterns of data for each factor across the grades by gender, independent samples t-tests were performed to determine significant differences at each grade level specific to gender including both assessment data and student survey responses. Using the entire population of each grade level as a sample, there were statistically significant differences in several categories. At all grades, there differences existed in SWIS referrals and writing postassessment scores. In Grades 5, 6, and 8 there were differences in Quarter 3 grades by gender; in Grade 5, there were also differences using the spring 2015 SBA results, PALS survey subtest discrepancies included classroom approach goals, handicapping, and disruptive behavior subtests. This analysis of results yielded several actionable patterns and reinforced the concern that there are factors influencing grades and school performance for male students.

Conclusions

A review of the above data points and simple analysis indicated that data can support the anecdotal pattern of concern. Although there were variations by grade level, the data indicated that male students tended to perform equitably or nearly equitably with their female peers on standardized measures. The only grade in which there was a statistically significant difference on a standardized measure was in fifth grade on the 2015 SBA. Also reinforcing the anecdotal pattern of concern was the results regarding writing, which were statistically significant at all grade levels.

The patterns that emerged regarding disciplinary (SWIS) referrals, self-reported handicapping, and disruptive behavior provided information for further investigation and a focus for intervention. In fifth grade and eighth grade, there were statistically significant differences noted in SWIS referrals and self-reported disruptive behavior, while in sixth grade, discrepancies occurred in self- reported mastery goal orientation and handicapping. Handicapping and disruptive behavior showed statistically significant differences across the school as a whole. Further, there was a statistically significant discrepancy at the school level based on self-reported perception of performance approach goals. Self-handicapping was positively correlated to performance goals (Leondari & Gonida, 2007). These results, taken in conjunction with the specific referral patterns described, indicated that male middle school students engaged in avoidance behaviors to a greater extent compared to their female counterparts. These data were essential in determining intervention focus and design.

Chapter 3: Causes of and Intervention to Address Avoidance Behaviors

The results of the May 2016 needs assessment indicated several patterns informing intervention design. Utilizing several subscales from the Patterns of Adaptive Learning Scales (PALS; Midgley, 2002) allowed for a determination of the extent to which there is a relationship between goal orientations, goal structures, behaviors (e.g., self-handicapping and disruptive behavior), and achievement based on several measures. Survey results indicated that there were statistically significant differences in the areas of disciplinary referrals, disruptive behavior, and goal orientation that could be addressed through an intervention.

Disciplinary referral data at the school level indicates a discrepancy between male and female students (Table 3). School referral data indicated that males received 78% of total written referrals, indicating higher rates of disciplinary concerns. Further, of the 56% of referrals assigned from classroom settings, males received 79%, of which 65% indicated disruptive behaviors categorized based on the Positive Behavioral Intervention and Supports (PBIS) behavior grid used by the school as disrespect, noncompliance, defiance, or disruption (Todd et al., 2010). Behaviors listed on referrals in these categories included primarily disruptive behaviors, such as constant talking, throwing paper, walking around the classroom, talking out, or not following teacher directions (JHMS, 2018c). According to Kumar, Gheen, and Kaplan (2002), disruptive behaviors, such as these, indicated disengagement from learning, which might allow students to account for low achievement based on low effort.

The greatest number of assessed categories with discrepancies between male and female results occurred in the Grade 5 cohort, who were the focus of the intervention.

Students in this grade indicated gender discrepancies in self-reported goal orientation and disruptive behavior based on PALS survey results. Therefore, an intervention designed with achievement goal theory as a foundation, with a focus on avoidance behaviors, might positively affect students. Achievement goal theory provided a theoretical basis for studying and intervening with male middle school students by providing a possible explanation for student engagement in specific academic behaviors (Midgley, 2002).

Theoretical Framework: Achievement Goal Theory

A review of the research related to achievement goal theory indicated connections between student goal orientations and behaviors (Urdan et al., 2002). Self-handicapping, disruptive behavior, and other avoidance behaviors could be both causes and results of performance concerns due to several connected factors. Students with performance goal orientations were more likely to engage in avoidance behaviors because their determination of success was related to a comparison to others (Dweck & Leggett, 1988; Kumar et al., 2002). Therefore, to prevent themselves from looking incompetent, students avoid the activity altogether (Wigfield, Klauda, & Cambria, 2011).

Performance goals predict using surface learning strategies, while learning or mastery goals predict deeper processing of material (H. Grant & Dweck, 2003). Students who held performance goals might not engage in in-depth analysis of the material, and when they encountered difficulty, they might have experienced decreased belief in efficacy and subsequent withdrawal of effort (H. Grant & Dweck, 2003). Some students might see effort and ability as inversely related, and these students were more likely to engage in avoidance behaviors, hold performance goal orientations, and have low self-efficacy (Urdan et al., 2002). Hattie and Donoghue (2016) found that the design of a

mastery or performance goal had a small correlation to achievement, but they did find larger effects related to how that student then approached the task. Similarly, researchers have shown that teaching students to regulate themselves in academic settings can improve academic performance (Wigfield et al., 2011). Self-regulation requires students to identify what success on a task looks like, access a repertoire of strategies, and determine which strategies to use to accomplish the task (Hattie & Donoghue, 2016). Therefore, an understanding of the role of goal setting and orientation, as related to the manner in which students self-regulated and engaged in the tasks led to the design of an intervention in which self-regulation impacts student behaviors.

Key components related to avoidance. In addition to the role of goal orientation, other related factors contributed to the level at which students engage in avoidance behaviors. According to Zimmerman (2009), students with low self-efficacy who do not feel capable of taking the steps necessary to achieve goals and who do not utilize reflective or self-regulating strategies are more likely to engage in avoidance behaviors. Thus, self-efficacy in working toward goals (Kleitman & Gibson, 2011), disruptive behavior (Turtura et al., 2014), and using self-regulated learning strategies (Ames & Archer, 1988; Thomas & Gadbois, 2007), are components of avoidance behaviors. Each component is interconnected, related to, and influences the others, thus requiring an intervention that is multifaceted and dynamic. Such an intervention needed to address the manner in which the components related to or influenced one another.

Avoidance behaviors included a variety of behaviors designed to deflect attention away from a perceived inability for students seeking to protect self-worth (Turner et al., 2002). This purposeful inaction helped the student to avoid failure, shame, and an

appearance of inability (Urdan et al., 2002). Results of the needs assessment indicated that male middle school students in context engaged in avoidance behaviors, specifically disruptive and self-handicapping behaviors, at a higher rate compared to their female counterparts (JHMS, 2018c). This finding was supported in research with fifth graders conducted by Urdan, Midgley, and Anderman (1998). In this study, the researchers examined whether students self-reported engagement in self-handicapping behaviors to avoid being labeled as unable, and the potential personal and contextual predictors of these behaviors (Urdan et al., 1998). Boys were found to report engagement in self-handicapping behaviors at a higher rate compared to their female counterparts (Urdan et al., 1998).

Self-handicapping. There seemed a limited body of research related to specific training designed to reduce self-handicapping (Schwinger, Wirthwein, Lemmer, & Steinmayr, 2014), and those that do exist have taken place in lab rather than naturalistic settings (Urdan & Midgley, 2001). Researchers have defined self-handicapping as "the creation of obstacles to compensate for possible future poor performance, thus allowing the self-handicapper to externalize the cause of failure" (Rickert, Meras, & Witkow, 2014, p. 1). Urdan and Midgley (2001) described self-handicapping as part of a cycle, in which self–handicapping led to poor performance, thus creating a greater need to self-handicap to avoid the additional stigma of poor performance. To intervene in this cycle, fostering mastery approach goals might help students to see that self and performance were malleable, leading to a reduction in self-handicapping (Schwinger et al., 2014). The authors suggested that this was a promising avenue for future research to explore, and

there was a need for intervention programs specifically designed to prevent or minimize self-handicapping (Schwinger et al., 2014).

Martin (2005) conducted a study focused on intervening in this cycle, describing self-handicapping as one of several motivation "guzzlers" or factors reflecting reduced motivation (p. 180). Other guzzlers included failure avoidance, uncertain control, and anxiety. "Boosters," which enhanced motivation, included self-efficacy, mastery orientation, persistence, planning, and study management (Martin, 2005, p. 180). The study had relevance because it addressed multiple factors related to motivation, rather than isolating and attempting to intervene in one area only (Martin, 2005). Within a pre-existing program of the Rotary Youth Program of Enrichment (RYPEN) for at-risk students aged 14 to 16 years old, a Student Motivation and Engagement Wheel was used as the foundation for a two-part workshop on motivation (Martin, 2005). The first workshop defined motivation, presented and explained the Student Motivation and Engagement Wheel, presented case studies, and discussed barriers to change. The second workshop then focused on specific facets of the wheel and strategies to address each one (Martin, 2005). Utilizing the Student Motivation and Engagement Scale for students to self-report both before and after the workshops, the researcher demonstrated that students showed significant improvement regarding their levels of motivation and use of strategies (Martin, 2005).

Although Martin's (2005) study was limited by a lack of a control group and concerns about the time of the year in which it occurred, the results had implications for future work in the area. First, the researcher demonstrated that a brief, targeted intervention could have an impact if focused on specific behaviors (Martin, 2005).

Additionally, Martin (2005) noted that although prior research demonstrated differences between boys and girls concerning levels of each motivational factor, little research was available about differences in the impact of an intervention by gender. The author explained that the study offered potential insight into the degree of motivational gains regarding gender, and more research was needed in this area (Martin, 2005).

Attempts to positively influence and reduce self-handicapping tendencies have focused on factors such as self-esteem. Kimble, Kimble, and Croy (1998) linked awareness of self-esteem to self-handicapping behaviors. The authors defined self-esteem as the way "one usually feels about oneself in terms of being able to succeed" (Kimble et al., 1998, p. 526), and they predicted that reminding students of their self-esteem prior to an evaluation task would affect self-handicapping. Using students in third grade (n = 43) and sixth grade (n = 38), personal reaction tests were administered either before or after a task to determine levels of self-esteem (Kimble et al., 1998). Priming positive thoughts for those with high self-esteem reduced self-handicapping for the older students, thus linking beliefs about self with engagement in self-handicapping. The authors asserted that to encourage maximum performance, especially among males with high self-esteem, self-affirmation before task performance could reduce self-handicapping (Kimble et al., 1998). Therefore, student engagement in learning might be impacted by how he or she felt about himself or herself. While this understanding was essential to understanding the learners on whom the intervention was focused, several other components were thought to play a role in creating the indicators of concern.

***Disruptive behaviors*.** Students who engaged in disruptive behaviors might be utilizing avoidance behaviors to avoid academic tasks (Turtura et al., 2014). A standard

response to student disruptive behavior was to remove the student from class. However, the more this occurred, the greater the student's sense of inadequacy upon return. Turtura et al. (2014) implemented a small-scale intervention with students who exhibited both problem behaviors in class and low organizational and study skills. The intervention was designed to address avoidance behaviors and the associated loss of instructional time, as well as increase student engagement in classroom instruction for students whose problem behavior was presumed to help them avoid instruction (Turtura et al., 2014). The focus involved improving specific behaviors by providing instruction on homework and organizational strategies and utilizing daily check-ins with the students regarding these strategies (Turtura et al., 2014). While only focused on a small number of students, the results of this study indicated that escape from the classroom partially maintained problem behavior. If work avoidance maintained the problem behavior, then teaching organizational skills might abolish that behavior. Therefore, efforts to decrease work avoidance by teaching organizational skills might prove an effective intervention for students who engaged in problem behavior as an avoidance tactic (Turtura et al., 2014). This study importantly linked disruptive and work avoidant behavior, both with the same goal of avoiding instruction, thus identifying disruptive behavior as a self-handicapping behavior.

Self-efficacy. Researchers have explored the link between self-efficacy and confidence in achieving goals in several interventions related to self-regulation. Self-efficacy refers to the belief a student holds that his or her effort will lead to success or mastery and that he or she has the ability to engage in the necessary behaviors to accomplish that (Ames, 1992; Dweck & Master, 2008). According to Bandura (1986),

those who are skeptical of their abilities to control their own behaviors and motivations may undermine their own efforts.

Schunk and Ertmer (2000) reviewed the theoretical framework of self-regulation, the relationship to self-efficacy, and interventions designed to enhance each one. They enumerated effective self-regulation as a combination of high self-efficacy and performing well, explaining that students with high levels of self-efficacy would persist longer, and utilize effective learning strategies (Schunk & Ertmer, 2000). Most importantly, Schunk and Ertmer (2000) described the cyclical qualities of self-regulation and the importance of success in raising self-efficacy, which influenced one using effective strategies. The authors recommended that programs designed to improve students' self-regulatory skills also addressed components for the enhancement of self-efficacy (Schunk & Ertmer, 2000).

Mastery or learning goals are also connected to increased self-efficacy and self-regulation (Zimmerman & Kitsantas, 1996, 1997). In their studies of a dart-throwing task with students in ninth and tenth grades, Zimmerman and Kitsantas (1996) found that students with learning or mastery goals attained higher self-efficacy compared to those with performance or product goals. This finding was replicated in the following study, with the added condition of switching students from a process goal to a product or performance goal once the steps in dart throwing became automatic (Zimmerman & Kitsantas, 1997). Students who shifted their goals in this way, achieving a certain skill level and then practicing for performance, attained the highest levels of self-efficacy (Zimmerman & Kitsantas, 1997). Throughout both studies, self-regulatory strategies

affected attributions or beliefs about the causes of outcomes (Schunk, 2009), which influenced self-efficacy (Zimmerman & Kitsantas, 1996, 1997).

Self-regulatory strategies. The overarching goal of education was to "enable students to become self-sufficient individuals who are able to manage their behaviors without the assistance of others"(Rafferty, 2010, p. 51). Specifically, success in middle school classrooms requires students to demonstrate and utilize specific skills and strategies. Often, students who struggle have less of a knowledge base of these study and self-regulatory skills, and they cannot determine the skills needed or identify when these are being used effectively (Cleary & Zimmerman, 2004). Students who self-regulate can identify what success on a task looks like, access a repertoire of strategies, and determine which will work or not work to accomplish the task (Hattie & Donoghue, 2016). Dignath, Buettner, and Langfeldt (2008) described self-regulation strategies as "concrete activities aimed at reaching a learning goal in a more efficient way" (p. 104). Self-regulation strategies can be improved through training, which can be accomplished through using direct strategy instruction (Dignath et al., 2008). The goal of this instruction is to engage students in the active, constructive process, whereby they plan to monitor their own learning (Hattie & Donoghue, 2016).

Essential to the design of the proposed intervention is the role of the student as an active participant. Student passivity is reduced when students have responsibility for the self-regulation process and are empowered to engage in that process actively (Cleary & Zimmerman, 2004). Students play a key role in the intervention process designed to address self-regulation skills as they engage thoroughly in the problem-solving process, goal setting, and strategy choice leading to attainment of their goals (Cleary &

Zimmerman, 2004). This engagement will ideally decrease their need to engage in avoidance behaviors.

Cleary and Zimmerman (2004) offered an example of an in-depth, intensive, and individualized program to improve self-regulation. The Self-Regulation Empowerment Program (SREP) assigned students to self-regulation coaches who worked closely with them in developing self-regulated learning skills (Cleary & Zimmerman, 2004). The process included an initial assessment, a reflection on individual use of learning strategies, a social-cognitive approach to teaching self-regulation strategies, the graphing of the goal-setting process and results, and the microanalysis of student processes throughout (Cleary & Zimmerman, 2004). Although based on a similar foundation with a focus on the connection between self-regulation, goal setting, and reflection, the level of intense work with individual students is not feasible in the context of the proposed intervention, based on the time and personnel resources required.

According to Stoeger and Ziegler (2008), there is a lack of evidence of classroom studies implementing self-regulatory strategies, although some research has occurred at the elementary level. Their work to address this gap in the literature focused on self-regulation as an interaction among personal, behavioral, and environmental processes. They utilized five modules of explicit instruction regarding specific strategies with students in fourth grade (Stoeger & Ziegler, 2008). Based on pre and posttest questionnaires, including scales for time management, self-efficacy, helplessness, willingness to exert effort, goal orientation, and interest, as well as weekly homework results and time tracking, students in the training group reported improved time management and self-reflection (Stoeger & Ziegler, 2008). This study applied both in

terms of demonstrating successful implementation of self-regulation training within the classroom and concerning the potential design of specific instructional modules. The specific topics selected for skills training, the length of the intervention, and the order in which skills were taught could all inform intervention design.

Dignath et al. (2008) investigated studies specific to primary schools and the effectiveness of self-regulation programs. This meta-analysis of self-regulation interventions revealed a high effect size in terms of effectiveness, with the highest benefits in areas of math performance, motivation, and using cognitive and metacognitive strategies. The authors reported that the largest effect sizes occurred in studies in which different strategies were used and combined throughout the instruction (Dignath et al., 2008). Their results further reinforced the need for explicit strategy instruction, as students need both the skill and the will to engage in self-regulated learning (Dignath et al., 2008). It was not clear the level of generalizability of these findings to students at the middle school level. However, students who could not demonstrate and apply self-regulatory strategies never received might benefit from this explicit instruction, regardless of their age.

Goal setting. A short-term outcome of the intervention requires the design of mastery goals by each student, as illustrated in the logic model (Appendix A). Regardless of the framework utilized for design, goals describe a future state and actions toward achieving that future state (Day & Tosey, 2011). Research into goal setting demonstrates relationships to social cognitive theory and self-regulation (Zimmerman, 2009) and achievement goal theory (Wolters, 2004). These components indicated it was essential for action toward a desired state to include recognition of several relevant factors,

including the importance of well-formed outcomes, as well as the role of feelings and emotion (Day & Tosey, 2011). Thus, designing a goal as a component of a cycle to recognize and address strategies of self-regulation explicitly, which assists students in learning to learn and recognizes students' self-efficacy or emotions about learning, may have positive results.

As part of their discussion regarding interventions for self-regulation, Schunk and Ertmer (2000) discussed the role of goals and attributes that might be essential to the intervention. Goals indicated the conscious results that students were working to accomplish, provide a standard by which learners could gauge progress, and were essential to self-regulation (Schunk & Ertmer, 2000). Thus, learners were motivated to focus and utilize effective strategies to provide a source of comparison along the way (Schunk & Ertmer, 2000). Individuals who create and work toward goals are more attentive to instruction and experience increased confidence as they monitor progress (Dembo & Eaton, 2000). Schunk and Ertmer (2000) enumerated the importance of goal properties, such as specificity, proximity, and difficulty, which could enhance motivation and self-regulation. Therefore, in providing instruction focused on goal design, these essential attributes were considered. The framework of a cycle of self-regulation (Zimmerman, 2009) provided a model in which one could address each of these components comprehensively, acknowledging the interrelatedness and providing students with multiple opportunities to engage in and apply each strategy (see Figure 5).

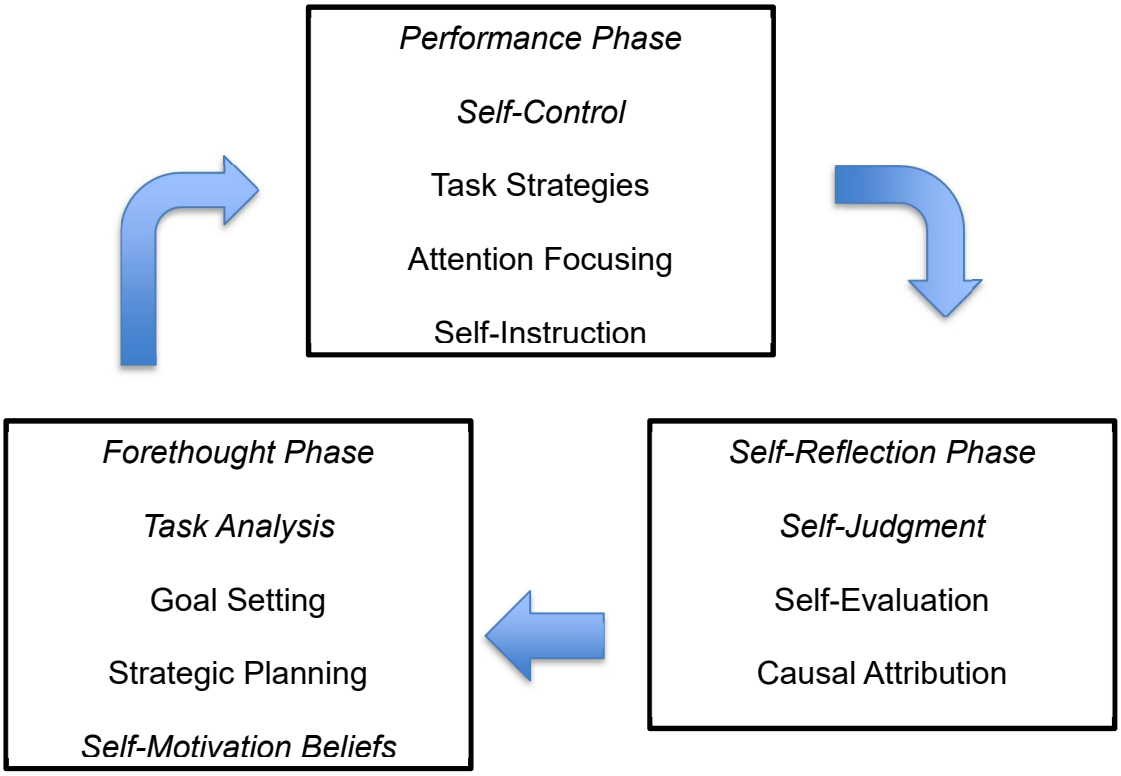


Figure 5. Cycle of self-regulation. Phases and processes of self-regulated learning as described by Zimmerman. Adapted from "Goal setting: A key proactive source of motivation and self-regulated learning," by D. H. Schunk & B. J. Zimmerman (Eds.), 2009, *Motivation and self-regulated learning: Theory, research, and applications* (p. 279). New York: Routledge.

Cycle of Self-Regulation

An intervention to address the variety of components linked to student engagement in avoidance behaviors needed to be multi-faceted and provide multiple entry points and levels of work. Zimmerman (2009) described one such framework for an intervention addressing the variety of components and included a three-part cycle of self-regulation (see Figure 5). Zimmerman (2009) described the three phases as forethought, performance, and self-reflection.

Other researchers have utilized similar cycles. For example, Perels, Gürtler, and Schmitz (2005) conducted a study regarding the impact of mathematical problem solving and self-regulation with eighth graders. The authors utilized a similar cycle of regulation

but used what they described as the more widely used terms of preaction, action, and postaction (Heckhausen & Kuhl, as cited in Perels et al., 2005). In each cycle, regardless of the terminology, the phases reflect the similar components of forethought, performance, and self-reflection (Perels et al., 2005).

While there is evidence that self-regulated learning can influence academic achievement (Dignath et al., 2008; Vrugt & Oort, 2008), there is little evidence that explicit instruction in the area of self-regulated learning strategies occurs in classrooms. Classroom teachers may refer to and ask students to use these strategies, but it is not clear that any systematic instruction takes place (Zimmerman, Bonner, & Kovatch, 1996). In fact, based on a study monitoring classroom instruction, teachers spend only 7% of their classroom time coaching students to use self-regulated learning strategies (Hamman, Berthelot, Saia, & Crowley, as cited in Nagle, Sheckley, & Allen, 2016). The remainder of the time is spent quizzing, interacting with students, and providing direct curricular instruction (Nagle et al., 2016). However, students seldom use these strategies effectively unless they have received systematic instruction (Zimmerman et al., 1996).

Forethought phase. Prior to learning, the forethought phase allows students to enhance their learning efforts proactively (Zimmerman, 2009). The beginning of the cycle of self-regulation includes the creation of goals and strategic planning to allow the learner to meet those goals. Inherent in this component of the process are the motivational beliefs of the learner, including self-efficacy and task values. Task values positively influence motivation when the learner personally values the skill or concept being learned, a commitment to positive outcomes that also influences a commitment to ambitious goals (Zimmerman, 2009). The role of self-efficacy and explicit instruction

designed to impact student beliefs about their capabilities to attain a certain level of performance are essential to the design of the intervention.

Implementing the intervention began with specific instruction and modeling of the creation of mastery learning goals as the first component of the process. The focus in the design of goals was on proximal or short-term measures because researchers have demonstrated that this focus is more effective for students as related to immediate task performance (Wigfield et al., 2011; Zimmerman, 2009). Additionally, the period of the intervention was more suited to short-term goal achievement, which allowed students to engage in the entire self-regulatory cycle multiple times within the semester time in which the intervention occurred.

Performance phase. The second phase of the self-regulatory cycle engages students in self-control and self-observation, which includes task strategies, attention focusing, and self-instruction, as well as metacognitive monitoring and self-recording (Zimmerman, 2009). Explicit instruction and modeling of strategies for metacognition were an essential component of the intervention, as well as strategies to help students focus their attention to the task during the performance phase (Zimmerman, 2009). Self-control methods allow students to reduce complex tasks into essential parts to reorganize them into a sequence for performance. Skills essential to self-control include the ability to focus attention and screen out other events, as well as the ability to verbalize one's thoughts and actions (Zimmerman, 2009).

Metacognitive monitoring and behavioral self-recording are methods to assist students in tracking work and progress toward their goal (Zimmerman, 2009). Zimmerman (1998), in his description of the regulatory strategies used by experts,

explained that experts self-monitored by observing, tracking, and recording performance. Students who struggle in school need explicit instruction in task analysis and the process of reflection, which begins with self-monitoring, to optimize success (Cleary, 2009). These students may lack specific learning goals to track, and may not appreciate the advantages of self-recording, which can increase the accuracy of feedback regarding performance (Zimmerman, 2009). Students with high levels of self-efficacy are more likely to monitor their learning methods through self-monitoring procedures, which allow them to engage with ongoing information and evaluate the adequacy of their strategy use (Cleary, 2009). Zimmerman and Kitsantas (1997) investigated the influence of goal setting on performance of a physical task and found that regardless of the type of goal set by students, self-recording significantly improved dart throwing abilities (Zimmerman & Kitsantas, 1997).

A variety of strategies for self-monitoring was explicitly taught to students as part of the intervention. Students carried the process of self-monitoring into the third phase of the cycle, in which self-reflection occurs. Lessons were implemented to allow students to gain from explicit instruction in specific task strategies, components of the performance phase, including note taking, test preparation, and performance strategies for optimizing speaking, writing, and problem-solving (Zimmerman, 2009). Not all strategies were successful for all; students were encouraged to select those strategies that worked best.

Self-reflection phase. The third phase of the cycle involved students in self-reflection, providing explicit instruction and opportunities to evaluate their own performance. This phase of the process involved causal attributions, providing learners with a way to make direct connections between the strategies they utilized and the results

(Zimmerman, 2009). Students who were less effective self-regulators often attributed their errors to causes beyond their control, such as their own limited level of ability. However, students who were more effective at self-regulating could attribute their failures to ineffective use of strategies or to causes that are controllable (Zimmerman, 2009). In doing so, effective self-regulators could sustain efforts to learn and modify their strategies used to make it more effective (Zimmerman, 2009).

Attributions, although made after the outcomes have occurred, also played a role in the forethought phase. The attributions students made for past performances would influence their thoughts about upcoming tasks and influence future goal setting (Wigfield et al., 2011). Students then received instruction and modeling specific to self-evaluation, with specific attention paid to linking performance to their use of strategies, or causal attribution (Zimmerman, 2009). One must note that throughout the intervention, components of student work such as metacognitive monitoring and goal setting, acted both as part of the intervention instruction and as measures of growth. Specifically, students could review their own reflections and goal progress and to make specific connections between the strategies they used and the results.

Intervention Design

The intervention was designed to occur during one semester, with 20 lessons provided for students in the treatment group. Each lesson occurred during a period of 30 minutes. This period, known as the Intervention/Extension (IE) period, was in place at JHMS for several years and occurred daily. The IE period was created in response to Connecticut's SRBI legislation (Connecticut State Department of Education, 2008) and the need to provide tiers of intervention for students. The time was used primarily to

provide Tier 1 and some Tier 2 interventions in core content areas, as well as to allow students to have bi-monthly meetings with their advisory group and to engage in Silent Sustained Reading (SSR). Therefore, students who were part of the treatment group did not miss any core instruction. Additionally, because the intervention required only one weekly lesson, students maintained the opportunity to receive necessary academic interventions, as well as participated fully in advisory and SSR.

Regarding the duration of the intervention, researchers have suggested that brief interventions can be effective when the intervention is well timed and targeted (Hattie, Biggs, & Purdie, 1996; Martin, 2005). Martin (2005) described a weekend intervention consisting of two workshops, while Hattie et al. (1996) indicated that learning skills interventions lasting as few as 3 to 8 hours in total were found effective. The advantage of a short-term intervention was that participants did not lose interest during the intervention before it ends (Dignath et al., 2008). The current intervention design led to a total of 6.5 to 8.25 hours of instruction over the span of 20 sessions. The length of the intervention coincided with the length of a semester, with one session per week throughout that time. This process allowed students to engage in the intervention without losing interest, as described by Dignath et al. (2008), as well as without missing other opportunities available during the intervention period of the school. These other opportunities included advisory meetings, specific academic intervention needs determined by core teachers for individual students, and SSR that occurred school-wide.

The intent of the intervention was not to saturate students with every self-regulation strategy possible, but to provide instruction, practice, and application of a few targeted strategies from which students chose what worked. In a meta-analysis of self-

regulation training programs for primary school students, Dignath et al. (2008) concluded that the highest effect sizes were in training that combined types of strategy instruction, to include cognitive, metacognitive, and motivational factors, with lessons designed to provide instruction in strategies across each domain.

Level of focus. In reviewing intervention literature related to achievement goal theory and self-regulated learning strategies, there are a variety of aspects to consider in the development of an intervention. Interventions associated with student motivation can be addressed at the student level or the educator/class level (Martin, 2001). In context, this intervention focused at the student level, including student approaches to schoolwork, beliefs about self, study skills, and reasons for learning (Martin, 2001). Specifically, the goal of the intervention was to decrease avoidance behaviors for students who demonstrate engagement in these behaviors. Teachers certainly play a role in designing instruction that helps students to develop the skills and routines of self-regulation. However, students should develop and use these skills independently to remain actively engaged in the process and develop the ability to access and deploy these skills on an ongoing basis, regardless of the classroom environment (Dawson & Guare, 2010). A review of achievement goal theory and literature related to avoidance behaviors, self-efficacy, and self-regulation indicated options for interventions to decrease these behaviors.

Lesson design considerations. The design of classroom instruction and support has an influence on the learning that takes place within that classroom. Goodenow (1993), in her study of classroom belonging, found that the support, interest, and respect students received from their teachers were the most influential components of belonging

associated with effort and achievement. There are several components of classroom structures that influence the motivational constructs targeted, including classroom tasks, goal orientation, recognition of student effort, cooperative grouping, and lesson pacing (Ames, 1992). Attention was paid to each in intervention lesson design, along with the domains of effective teaching, as described by Marzano, Frontier, and Livingston (2011).

Classroom structure and routines. To assist students in self-regulating and monitoring their own learning, each session had a clear agenda and targeted goal (Gregory & Kaufeldt, 2015). This not only allowed for a clear direction for the lesson, but also helped to elicit curiosity, reduce stress, and prepare students for the upcoming activities (Gregory & Kaufeldt, 2015). According to Marzano et al. (2011), certain routines are expected, regardless of the content, to communicate learning goals, track student progress, celebrate success, and establish and maintain classroom rules and procedures. Routines help students to know what to expect and allow for maximum use of time, while rituals can serve as positive social messages that can increase student motivation and engagement while building a sense of community (Hardiman, 2012).

The length of each period was 30 minutes, which is less than the length of the typical academic period at JHMS. The routine structure of each lesson maximized classroom productivity (Pianta, Hamre, & Mintz, 2012). After a brief restorative circle (Costello, Wachtel, & Wachtel, 2010), a mini-lesson was followed by application to individual work, conferencing with the teacher, peer discussion, or reflection. Using classroom routines and rituals throughout the lessons assisted in the creation of a positive learning environment by adding a level of predictability (Hardiman, 2012).

Creating a low stress environment. One must understand the impact that stress has on cognition and on a student's ability to learn. When students are placed in a stressful environment, their ability to focus on the cognitive processes needed for learning is influenced, which means that creating a low stress environment is essential (Hardiman, 2012). Conversely, positive emotions can have a positive impact on learning (Hardiman, 2012). A student who is struggling in school and who has a low level of self-efficacy related to school performance may experience negative emotions in the classroom, associated with lower levels of motivation (Goodenow, 1993). While some of this may relate to school culture as a whole, there is an opportunity to ensure that the series of lessons provided in the treatment also provided a level of community and safety.

Students experience a wide variety of emotions in academic settings (Pekrun, Goetz, Titz, & Perry, 2002). Research has demonstrated that academic emotions, both positive and negative, can influence motivation to learn as well as self-regulated learning (Pekrun et al., 2002). Relevant to this study, in their overview of research on the impact of emotions on learning, Pekrun et al. (2002) found that self-regulation could be fostered by positive emotions, while negative emotions may lead students to rely on external guidance. The authors noted that this might also work in reverse if a student effectively self-regulated and might cause positive feelings (Pekrun et al., 2002). Because students who may have low self-efficacy and engage in self-handicapping activities may experience negative emotions, such as anxiety and shame, one should design a classroom structure for the intervention that addresses these negative emotional components, as well. In addition to the influence of quality classroom instruction, one must also engage

students in opportunities for social relatedness and support, allowing students to become positively affiliated within the classroom (Pekrun et al., 2002).

To assist in designing such a safe place for learning to occur and opportunities for social relatedness, each session started with a restorative circle. As a key component of restorative practices, which schools can use proactively, circles help build positive relationships between students, and between students and teachers. Within a circle are the values of a classroom, including safety and trust, equality, responsibility, facilitation, ownership, and connections (Costello et al., 2010). Using a restorative circle to begin each class helped the instructor to develop relationships with students, to understand where each student was coming from each day, and to address any concerns (Costello et al., 2010). Using this strategy provided several components of Hardiman's (2012) brain-target one, explicitly providing an opportunity for predictability in the form of routine, ritual, and celebration, as well as a method for testing the emotional temperature of the students as they enter the classroom. The opportunity for students and teacher to check in and acknowledge the emotions they bring into the classroom allows for disengagement from the emotion and engagement in the academic task (Hardiman, 2012).

Control and choice. Choice can be empowering and motivating, which might increase commitment to a task (Gregory & Kaufeldt, 2015). A challenge in the design of the intervention was the ability to motivate students in the treatment group who may be unmotivated and are thus the focus of the intervention. Because of this, classroom design and instruction within the treatment must reflect best practices for increasing academic motivation for students. Enhancing student control may help to reduce anxiety, avoidance and self-sabotage (Martin et al., as cited in Martin, 2001). One such way to increase

academic motivation relates to classroom structure and decision-making. When given the opportunity to make decisions within the classroom structure and to take responsibility for their own learning, students become more involved in the task and academic motivation increases (Wentzel & Wigfield, 1998). Student control can also be increased through a demonstration of the effect of hard work and study strategies on achievement, and by providing choice over lesson objectives and tasks, assessment tasks, and due dates (Martin, 2001).

Choices were allowed in content, methods, and assessment throughout the intervention to motivate performance (Hardiman, 2012). Examples are seen in each of the lesson designs enumerated in Appendix B. Not only did these choices occur within the structure of the intervention, but also students gained through the intervention the ability to make choices moving forward. Through explicit instruction and application of several strategies within each lesson, students gained a repertoire of skills. Then, within their content area classes moving forward, they have these options to choose from depending on the specific situation and need. Knowing that they have this toolbox of resources may also help them to address their academic needs more confidently.

The design of the intervention provided students with the opportunity and ability to be in control of the intervention. In a study specific to self-management skills for middle school students with ADHD, Gureasko-Moore, DuPaul, and White (2007) explained that an intervention requiring students to be primarily accountable for their actions was particularly important for middle school students as they prepared to move toward the increased demands for accountability in high school. Additionally, engagement in a metacognitive process requires that students make decisions as to which

strategy is most appropriate at each stage of the process (Vrugt & Oort, 2008). For example, students had the opportunity to choose which content area to focus on each time they set a mastery goal to begin the cycle.

***Connection to content areas*.** Research on self-regulated learning has demonstrated the gains that can occur when implementing focused instruction within classrooms, including a significant impact when the instruction is context related and domain specific (Dignath et al., 2008). While the intervention as designed did not provide this direct intervention into a specific context, it was nevertheless crucial for students to experience some context related application. Within each lesson, there were opportunities for students to apply new strategies using materials or specific work from a target content area. Additionally, as students set goals, they chose a specific content area on which to focus their goal. Thus, the cycle of new strategies was embedded, for each student, within their experiences in that content area classroom and material. Using learning strategies can further assist students in generalizing beyond the specific learning context in which they are learned or initially utilized, leading to increased engagement in self-regulated learning and increased self-efficacy (Schunk, 1989).

There is some evidence to support self-regulation instruction outside of a specific class or content area. The transfer of skills to all content areas and the extent to which students engage in this transfer will ultimately influence their level of success in all academic areas. According to Schunk and Ertmer (2000), there is a need to consider the issue of transfer when addressing students' self-regulation skills. If the skills are taught in a specific content area, there is a concern that these skills might not transfer to other disciplines. However, if students learn how to self-regulate, believe that self-regulation is

beneficial, and know how to modify their self-regulation to fit particular situations, and then transfer across areas will be possible (Schunk & Ertmer, 2000). The goal, therefore, of the proposed intervention was to provide for these three factors and to prepare students to employ strategies of self-regulation in all disciplines. To do so, students needed to engage with these skills, apply them throughout their school day, and have opportunities to reflect on the results of their usage. Utilizing qualitative methods that allowed students to analyze this throughout their day and the intervention will ideally facilitate transfer (Schunk & Ertmer, 2000).

Teacher modeling of strategies. Teachers may assist students in learning to self-regulate and select strategies by modeling their own use of these procedures (Zimmerman et al., 1996). As students observe the behaviors, verbalizations, and non-verbal behaviors in which the teacher engages, these behaviors act as cues for their own behaviors (Schunk, 1989). Through planned instruction, teachers can demonstrate their use of monitoring and strategy use, engage in think-alouds about the expected and actual results, and students may refine their strategies based on those results (Zimmerman et al., 1996). Built in to the lesson designs for the intervention were multiple opportunities for teacher modeling (Appendix B).

Lesson progression through cycle. Self-regulation, which allows learners to construct their own meanings, goals, and strategies based on what is available in their environment, is best developed through experience (Kaya & Kablan, 2013). An intervention that allows students to utilize strategies and to experience what that looks and sounds like allowed them to better develop the necessary skills to carry forward. To engage in successful self-regulated learning, both a metacognitive and a strategies

pathway are required (Vrugt & Oort, 2008). Specifically, learning strategies can help to control and regulate student cognition including metacognitive strategies, cognitive strategies, and resource management skills. Self-regulation also allows students to view learning proactively and see it as something that they can do for themselves, rather than something that is done as a response to teachers (Zimmerman, 2002).

Forethought phase. Learners vary in the level of effectiveness for self-designed goals (Zimmerman, 2009) and as such, explicit instruction in goal setting is required as a foundation for the self-regulatory cycle. To design an effective goal, there needs to be recognition that the task is valued (Zimmerman, 2009). Linked with this are motivational beliefs about a student's ability to attain a certain outcome, specifically self-efficacy (Zimmerman, 2009). Self-efficacy cannot necessarily be taught utilizing specific steps or strategies. However, once students have engaged in the complete cycle, and can attribute success and failure to specific actions on their part, self-efficacy may increase (Zimmerman, 2009).

Goal setting. Working toward a mastery goal promotes "high-quality involvement in learning" (Vrugt & Oort, 2008, p. 139). While there are a variety of structures of formats available for teaching goal setting, perhaps the most frequently utilized is the SMART goal framework (Day & Tosey, 2011). Goal setting is the first step in the cycle of self-regulation (see Figure 4). As a key form of task analysis, creating a mastery goal helps students to focus as they move to the performance phase of the cycle (Zimmerman, 2009). While demonstrating an ability to design a mastery goal at least once was essential, one must note that for some students, this took multiple attempts.

Goals can be designed to be either distal or proximal (Zimmerman, 2009). For the purposes of this intervention and the period in which it occurred, students were prompted to design proximal goals or goals that were nearby. Not only did this allow students to engage in the cycle more than once, but proximal goals also result in greater motivation than long-term goals and are easier for students to gauge progress toward (Schunk, 1989). Therefore, lessons were designed to demonstrate the structure of a goal to allow students multiple opportunities to practice the creation of mastery goals. Students received a choice regarding the subject and content on which they focused, as a way to promote self-efficacy (Schunk, 1989). Explicit instruction and feedback throughout the lessons assisted students in the design of goals. Goals were recorded as a component of the structured diary and were collected and analyzed in February. The lesson progression was designed to allow regular opportunities for students to revisit and reflect on goal progress throughout the intervention (Appendix B).

Self-efficacy. Self-efficacy for learning is influenced by a variety of factors, including prior experiences, attitude about learning, and students' abilities (Schunk, 1989). This personal level of efficacy is also impacted by instructional and social factors, meaning that each student will approach learning tasks with differing levels of self-efficacy (Schunk, 1989). As students gain in their abilities to self-regulate and can evaluate progress toward learning goals, they will be more likely to feel confident about continuing to work to improve their skills (Schunk, 1989). Efficacy may increase as students work toward goals with specific performance targets and note their progress (Schunk, 1989). Thus, with each opportunity to engage in the cycle of self-regulation,

which included opportunities for self-reflection and attribution, student self-efficacy might have increased.

Performance phase. Task strategies enable students to break complex tasks down into their essential parts and to reorganize them in a way that allows for systematic steps of performance to occur (Zimmerman, 2009). These study strategies or learning strategies refer to processes through which learners enhance their own learning (Hattie & Donoghue, 2016). Students benefit from the meaningful and direct practice of learning strategies, especially when they can connect these to specific content area needs (Ley & Young, 1999). The planning component of this phase was important as well, since students who plan and monitor have a higher tendency to have clarity about what the assignments are, how to complete the assignment or study for the test, and how to track their own progress (Martin, 2001).

Students who can determine and match appropriate learning strategies to outcomes have demonstrated improved outcomes (Ley & Young, 1999). These include strategies, such as note taking and test preparation, which are highly effective in helping students to acquire surface learning (Hattie & Donoghue, 2016). This level of surface learning assists students in further encoding and investing in further learning (Hattie & Donoghue, 2016). Further learning continues the performance phase, as students learn strategies to focus their attention and engage in self-instruction, metacognitive monitoring, and self-recording (Zimmerman, 2009).

Note taking. In their meta-analysis of the impact of learning skills interventions on student learning, Hattie et al. (1996) found that using structural aids appeared to be

uniformly effective on performance. These aids include constructing graphic organizers, as well as selecting and using effective task strategies (Hattie et al., 1996).

Strategies for note taking that allow students to visualize information include graphic organizers and concept maps. Graphic organizers help students to organize information graphically and come in a variety of formats (Marzano, 1992). Students have opportunities to learn about and apply several different organizers, with the goal of providing options for them to use based on the need of the assignment and their personal preference. Concept maps help students to understand connections and global concepts (Hardiman, 2012). According to Hardiman (2012), students may have increased conceptual understanding when they use concept maps to make connections among learning goals and activities. This increased global understanding helps students to organize and categorize content, increase comprehension, and problem solve more effectively (Hardiman, 2012). Modeling and application of each form or note taking occurred during specific lessons (see Appendix B).

Time planning and management. In their study of metacognition and academic achievement, Vrugt and Oort (2008) identified resource management as an effective study strategy with a positive influence on exam scores. Resource management includes the prerequisites of effective studying, including scheduling, planning, and managing one's study time (Vrugt & Oort, 2008). Each of these components requires explicit instruction and strategy implementation.

Middle school students are still at an age where their families may structure their time. Therefore, based on their lack of experience with structuring their own time, it was essential that the teacher provide support (Zimmerman et al., 1996). Students needed

explicit instruction in developing and implementing their own strategies (Zimmerman et al., 1996). The goal of this explicit lesson and follow-up lessons was to provide students with concrete suggestions for creating and adjusting schedules, as well as opportunities for students to put these strategies to use and reflect on their effectiveness (Zimmerman et al., 1996).

Managing study time/environment. Environmental structuring may include structuring of the physical, personal, or social environment (Purdie & Hattie, 1996). To maximize learning, students initiate efforts to organize their learning context in ways that help them to learn better (Zimmerman & Martinez-Pons, 1986). Ley and Young (1999) described environmental structuring as the ability to select and arrange the physical setting to make learning easier, citing this as the "second strongest predictor of achievement between normal and lower achieving college students" (p. 95). Students who structure their environment effectively can design quiet, comfortable study areas to cope with disturbances and control distractions (Ley & Young, 1999). Students may also engage in personal behaviors to create the right mood or feeling before studying, such as taking a break or engaging in a specific activity before they start (Purdie & Hattie, 1996).

Lessons and specific learning targets included an initial analysis of the environment in which the students study, an analysis of how that environment could be made more effective, application and use of the environment, and reflection on the effect of the environment throughout the treatment (Ley & Young, 1999). In their study of the relationship between using learning strategies by primary students and their science achievement, Kaya and Kablan (2013) found that effort regulation had the highest correlation to academic achievement. Effort regulation allows students to control their

effort, even when tasks are uninteresting, and there are distractions in the environment (Kaya & Kablan, 2013). While students may not necessarily be able to change assigned tasks, they can be taught to manipulate them to make them more interesting and to design environments for working that have minimal distraction.

Metacognition. Zimmerman (2002) defined metacognition as "awareness of and knowledge about one's own thinking" (p. 65). As such, researchers have described metacognition as having two components: knowledge of cognition and regulation of cognition (Sperling, Howard, & DuBois, 2004). These components indicate how learners understand the way they learn, and how they regulate their own learning (Sperling et al., 2004). As students gather internal feedback about progress through metacognitive monitoring, they can gather feedback about the discrepancy between progress and goal, which serves as the basis for further action (Puustinen & Pulkkinen, 2001). Metacognitive strategies had a positive effect on exam scores in a study of first year psychology student conducted by Vrugt and Oort (2008). These strategies occur during task performance and include the ability to monitor, check, and regulate cognitive processes (Vrugt & Oort, 2008). Monitoring strategies may include self-questioning of comprehension during task performance to build better comprehension (Vrugt & Oort, 2008). Think-alouds can be utilized during instruction to model metacognitive processes for students (M. Grant, Lapp, Fisher, Johnson, & Frey, 2012).

Test preparation. Informal interviews with students about how they prepare for tests often include statements about "reading over my notes" or "skimming the book." Many students, when faced with an upcoming test, do not know where to start when preparing; thus, they often avoid preparing altogether. Strategies for test preparation need

to be taught to allow students to have options that meet the needs of various assessment types, as well as their own personal preferences. Although rote learning is not used as frequently as in the past, with teachers striving for conceptual understanding, facts and skills are often the prerequisites to this understanding. These facts and skills require memory (Hardiman, 2012), and students need strategies to help them to maximize their memory.

A variety of resources provides ideas and structure for students as they prepare for tests. For some assessments, it will be essential for students to gain and practice skills that involve using repetition, rehearsing, and memorizing (Hattie et al., 1996). Rehearsal, especially when repeated over time, can be one of the most important strategies for recall of information (Hardiman, 2012). Teaching students to elaborate on the subject matter and relate it to their own lives, generate the information on their own, or physically act out the information, also makes the information more meaningful and more memorable (Hardiman, 2012). Other strategies, such as pictorial representation, mnemonics, and chunking, can also be effective in helping students to memorize (Hardiman, 2012) and are test preparation strategies discussed and applied. Additionally, providing students with information about how their memory works, the factors affecting memory on a daily basis and how they can best retrieve and apply knowledge from their memory engaged them in a metacognitive process from which they ideally gained the ability to determine what works best for them.

Self-monitoring. Of primary interest in the design of the intervention was the manner in which students who were unmotivated might be motivated. Students who effectively self-regulated could use internal and external feedback to monitor their

progress toward learning goals, and those who used a self-monitoring protocol performed better on exams than those who did not (Ley & Young, 1999). Using self-monitoring creates an opportunity for students to track their own functioning cognitively (Zimmerman, 2002). Allowing students to begin self-monitoring as soon as the intervention started was designed to enhance motivation, as the detection of subtle progress for novices as they gain skills may serve to increase self-satisfaction and self-efficacy (Zimmerman, 2002). Self-monitoring will occur primarily through using the structured diary, in which students were asked to indicate time spent on learning activities such as note taking, test preparation, or homework completion (Ley & Young, 1999).

Self-reflection phase. The final phase of the cycle involved students evaluating their performance and making causal attributions about the results, as well as making inferences about what changes might need to be made in future situations. This phase, although the final phase, was essential to the processes in the forethought phase, allowing students to re-engage in a cycle of self-regulation (Puustinen & Pulkkinen, 2001).

Causal attributions. An important outcome related to self-monitoring, as part of this third phase of the cycle, is the ability for students to make causal attributions. According to Schunk (1989), as students develop, they move from a view of effort as the primary cause of outcomes to a more distinct understanding of ability as attribution for performance, and the importance of effort declines. While strategies taught during these lessons asked students to think explicitly about causal attributions, which was an essential skill for students to gain regarding fostering motivation, these were not easy to change in the length of time scheduled for this intervention (Dignath et al., 2008). Nevertheless, for students to continue strategy use after completion of the intervention, they must value on

using the strategies (Schunk, 1989). One way for this to occur was for them to attribute performance clearly to using specific strategies. This strategy-value will promote maintenance of using strategies. For example, Zimmerman (2009) described a case study in which the student engaged in a cycle of self-regulation. The student graphed her study strategies entered a reflection process linking using a specific strategy with a successful result on a test. Thus, components of the structured diary requiring students to monitor their strategy use and results were essential to full student engagement in the cycle of self-regulation.

Structured diary. The structured diary was an essential component of the intervention as a vehicle for student reflection, and as a component of measurement. Using scales and surveys to gain self-reports of self-handicapping is prevalent in the research (Thomas & Gadbois, 2007; Turner et al., 2002; Urdan et al., 1998). However, asking students to report whether they have engaged in self-handicapping behavior may lead to what is thought of as a socially acceptable answer rather than an accurate response (Rickert et al., 2014). Alternatively, students may not be aware that their behavior is self-handicapping (Rickert et al., 2014). Therefore, to explore what self-handicapping truly looks like and to determine the level at which the students in the treatment group engage in these activities, a structured diary was important. This diary allowed for a more clear indication of what self-handicapping looks like on a regular basis, and how students respond to the challenges they face (Rickert et al., 2014).

Questions in the structured diary (see Appendix B) included both scales to respond to regularly as well as brief reflection questions along the way. The design of the diary considered concerns about students who might not like to write or who had

difficulty with writing. Reflection questions required responses of 1 to 2 sentences only, along with scales and factual tracking of items such as time spent on specific tasks. Questions to be answered included what homework or studying they had that day, how difficult that work was, what new strategies they applied in class, and reflection on the results of using a specific strategy (Rickert et al., 2014). Additional questions were specific to lessons taught on any given day. Students also regularly reflected on goal progress and responded to prompts about time usage and homework completion.

Essential to the design of the intervention was explicit instruction in the specific components of the cycle of self-regulation, as well as student engagement and effectiveness in doing so which also served as a measure of the effectiveness of the intervention. Thus, students needed to determine which strategy to use, as well as demonstrate an ability to reflect on the results and to use that information to make decisions moving forward. The self-observation in which students engaged was further aided by engagement in self-recording (Schunk, 1989). Self-recording allows students to not only learn strategies by doing, but as essential to social cognitive theory, also provides a mechanism for explaining such learning (Schunk, 1989). The structured diary provided the reinforcement of target behaviors necessary to reach independent levels of skillful performance (Skinner, 1953). Certain components of the structured diary, such as mastery goal creation, were analyzed less for quality and more for simple completion of tasks and engagement in the steps of the process.

Self-monitoring. As students engage in work toward their goals, self-monitoring can be used to assist them in determining how well they are progressing (Schunk, 1989). Using prompts and strategies for self-monitoring within the conditions in which the

behavior occurs, such as tracking time on task or where they work most effectively, can help to motivate change (Schunk, 1989). Students often do not realize how much time is being wasted with nonacademic activities until they begin to track their work time (Schunk, 1989). As students begin to use new strategies, they will tend to lapse into more familiar strategies unless they are prompted to carefully monitor performance (Zimmerman et al., 1996). Therefore, specific components within the structured diary were designed to assist students in becoming aware of their strategy use and effectiveness, allowing them to alter those habits for further success.

Self-efficacy assessments. Self-reflection for students also included regular self-efficacy self-assessments. These included opportunities for students to monitor their self-efficacy objectively for attaining learning outcomes (Zimmerman et al., 1996). Students may have monitored time spent studying for an assessment, completing an assignment, or using strategy and connect those to the results that they achieve (Appendix B). By comparing this monitoring with classroom results, students may be able to identify whether their self-judgment was accurate, ideally leading to more realistic future self-monitoring (Zimmerman et al., 1996).

Transfer. Researchers have identified the importance of matching the requirements of a task to the specific study strategies that will be most helpful. For example, Hattie and Donoghue (2016) described transfer as a dynamic process. As students transfer skills and strategies into content areas, they need to choose and evaluate which strategy to use based on available resources (Hattie & Donoghue, 2016). The authors make a case that students need to be able to identify patterns, similarities, and differences in tasks before transferring strategies to novel situations and that this needs to

occur within a cycle of teaching in a specific course (Hattie & Donoghue, 2016). The goal of the intervention was to explicitly teach students about learning strategies, and help them to begin their process of novel application through reflection.

Conclusion

Middle school boys engage in avoidance behaviors at a higher rate compared to their female counterparts. The factors that contributed to these behaviors might vary by student. Through a study of achievement goal theory, goal setting, and learning strategies an intervention was designed that might have an influence. In improving student motivation and learning, opportunities were provided for students to learn about and engage in strategies of self-regulation. This aspect might result in a greater willingness to access and engage in classroom instruction. An intervention designed to change the cycle in which a student was involved from one in which they avoided instruction because they could not do the work to one in which they understood ways to approach the work and gain the needed instruction might positively influence the lives of middle school boys.

Chapter 4: Intervention and Program Evaluation Methodology

As indicated by the needs assessment and intervention literature, students who avoided instruction might benefit from explicit instruction in skills of self-regulation. The needs assessment results indicated that males were less likely to have a mastery goal orientation, tended to have lower self-efficacy, and engaged in disruptive and self-handicapping behavior at a higher rate compared to their female counterparts. Therefore, an intervention was designed with achievement goal theory (Midgley, 2002) as a framework, in which members of the Grade 7 cohort at JHMS participated in explicit lessons focused on Zimmerman's (2009) cycle of self-regulation (see Appendix B). Lessons focused on forethought, performance, and self-reflection phases, as well as reflection and applications of new strategies, were monitored for the influence on short-term outcomes, including self-efficacy, engagement in self-handicapping and disruptive behaviors, and cognitive strategy use. These mediating variables, in turn, might influence the rates at which students earned disciplinary referrals, and their motivation and engagement in further education long-term.

Intervention Framework

A study of motivation and achievement goal theory led to the framework for the intervention. Achievement goal researchers have identified two types of goal orientations held by students. Students with mastery goal orientations are motivated by learning and by a desire to master content and skills (Wolters, 2004). Performance goal oriented students are motivated by comparisons to others and by the appearance of success (Wolters, 2004). Therefore, a student who has a performance goal orientation is more likely to engage in behaviors to avoid instruction and avoid the appearance of failure

(Urdan et al., 2002). These avoidance behaviors include disruptive and self-handicapping behaviors, which researchers have linked to lower levels of self-efficacy (Urdan et al., 2002). Thus, the intervention was designed to instruct in classroom learning strategies and mastery goal design explicitly to increase mastery goal orientation and self-efficacy, as well as decrease avoidance behaviors.

Purpose of Study

The study was designed to respond to a problem in a specific middle school, in which male students demonstrated low levels of motivation. Thus, the specific and immediate desired outcome related to the students involved in the study, and in their responses to the instruction provided regarding a cycle of self-regulation (Zimmerman, 2009). If students, especially males, avoided instruction by engaging in self-handicapping and disruptive behavior, and if they did so because they held performance goal orientations, had low self-efficacy, and did not utilize self-regulatory strategies, then explicit instruction should improve these outcomes. In doing so, the purpose of the study expanded beyond the individual students. Decreasing avoidance behaviors might also lead to a decrease in disciplinary referrals related to classroom disruption, as students who engaged in this behavior might be attempting to avoid instruction. Students who disrupted class had a negative influence on not only their own but also their classmates' achievement. Thus, all students benefited from decreased disruption (Hattie, 2009).

An essential component of the intervention, as related to previous research (Urdan et al., 1998; Zimmerman & Kitsantas, 2005), was the outcome measured. Researchers have measured goals and self-regulation related to grades, perceived levels of self-handicapping, or perceived goal structures (Urdan et al., 1998; Zimmerman & Kitsantas,

2005). Although relationships existed between goal orientation, self-efficacy, self-regulation, and avoidance behaviors (Urdan et al., 2002), using indicators of avoidance, such as disruptive behaviors or disciplinary referrals as outcomes measured, seemed less explored. Therefore, this study was designed to determine if addressing the ability of male middle school students to engage in the classroom by increasing their skills and confidence related to self-regulation might influence their level of avoidance, as indicated by disciplinary referrals.

Some researchers have included gender analysis of levels of self-handicapping (Kimble et al., 1998, Leondari & Gonida, 2007; Midgley & Urdan, 1995; Urdan et al., 1998), disruptive behavior (Kaplan, Gheen et al., 2002), or goal orientation (Dekker et al., 2013) with mixed conclusions. Schwinger et al. (2014) did not find gender a significant moderator for self-handicapping through their meta-analysis of self-handicapping and achievement. However, they did state that future research might be needed to determine if the consequences of self-handicapping differed by gender (Schwinger et al., 2014). Because engagement in avoidance behaviors was not unique to male students, one questioned whether differences occurred in the level of consequences experienced by males or the ways in which the genders responded to an intervention. As reflected in the research questions, one goal of the study was to determine if males responded differently to intervention compared to their female counterparts. While both genders might demonstrate components related to avoidance, one questioned whether a focused intervention affected them differently and if they responded differently to the components.

The extended purpose of the study beyond the scope of this dissertation related to a systemic impact. Students, who demonstrated the markers of low motivation, including low self-efficacy, performance goal orientations, and engagement in avoidance behaviors, continued to encounter difficulties beyond middle school (Thomas & Gadbois, 2007). Specifically, males engaged in post-secondary education at lower rates compared to females, influencing earning potential (Carlson & McChesney, 2015; Christofides et al., 2009; Jacob, 2002). Thus, the long-term purpose of the study was twofold: (a) to provide students engaged in the study with the tools to impact future educational outcomes positively and (2) to determine whether explicit instruction regarding self-regulation could be useful as an essential part of the core curriculum at JHMS, influencing not only the specific students involved in the study but future cohorts, as well.

The research questions for the study were the following:

RQ1: To what extent does explicit instruction in a cycle of self-regulation lead to an increase in self-efficacy, mastery goal orientation, and cognitive strategy use?

RQ2: To what extent does explicit instruction in a cycle of self-regulation lead to a decrease in avoidance behaviors including self-handicapping and disruptive behaviors, and thus a decrease in disciplinary referrals?

RQ3: Does an intervention designed to decrease avoidance behaviors by providing instruction in self-regulation impact male students differently than female students?

Research Design and Evaluation

The intervention occurred during the fall semester of 2017 to 2018 with students enrolled in Grade 7 at JHMS. The researcher used a mixed-methods approach to

designing and implementing the intervention to gather both quantitative and qualitative data. The logic model (Appendix A) indicated the flow of inputs; activities; and participants, which led to proximal, medial, and distal outcomes measured by that data. To assess the efficacy of the outcomes, fidelity of implementation was assessed through a process evaluation. This section includes a description of the participant recruitment process and sample, the research design, and both fidelity and outcome evaluation.

Participant recruitment process. The students in both the treatment and control groups were members of the seventh grade class ($N = 100$) at a suburban public school during 2017 to 2018. The seventh-grade cohort was selected as the focus of the intervention for several reasons. First, students attended JHMS beginning in fifth grade and remained through eighth grade. Focusing the intervention on work with students in seventh grade provided the researcher with 2 years of data, specifically disciplinary referral data. Second, this cohort of students was in the fifth grade at the time of the May 2016 needs assessment. At that time, results indicated discrepancies between males and females on several indicators, including SBA scores, Quarter 3 grades, writing scores, disciplinary referrals, and self-reported disruptive behavior. This finding was more than any other grade level assessed at that time, thus indicating the greatest need. Last, the transition from sixth to seventh grade was difficult for students, as seventh graders had to access and utilize self-regulatory strategies independently in an environment of increased independence.

An informational letter was used to recruit participants and was sent on two separate dates to all students in seventh grade using the school listserve. This letter explained the study and required parents to consent to their child's participation and using

their data (Appendix C). There was some concern about coercion due to the direct role of the researcher as principal. Therefore, consent forms were returned to the administrative assistant, who recorded the information. Prior to the return of consent forms, a data table was created with school data for all potential students ($N = 100$). This data included school assessment and attendance data, grades, and disciplinary referral numbers. The administrative assistant had sole access to this table throughout the course of the consent process.

Returned consent form numbers were lower than anticipated. The letters were sent as the school year started, and were thus one of many communications requiring action at this time of year. Therefore, only 28 consent forms were returned consenting to the study (18 male and 10 female), one form returned declining participation, and the remainder simply not returned. As parent consent was obtained, this was entered into the above-mentioned data table. Students who did not consent were removed from the table.

All students with parental consent ($n = 28$) met with the researcher for a brief explanation of the study, and all but one assented to participate at the conclusion of this introductory session (see Appendix D for Student Assent script). The intervention design included a control and a treatment group, and students in both conditions must demonstrate the indicators of concern, especially regarding levels of disciplinary referrals. Using the data table with names removed, this sample of 27 students was broken into two representative groups (i.e., a treatment and control) using stratified random sampling (Shadish, Cook, & Campbell, 2002). The treatment group ($n = 14$) consisted of nine males and five females, and the control group ($n = 13$) consisted of eight males and five females. During the intervention, one female in the treatment group

did not meet minimum attendance, and one male student in the control group did not complete the post-assessment correctly. Thus, final data analysis was conducted for 25 students, including 13 in the treatment group and 12 in the control group.

Process evaluation. Fidelity of implementation was important to assess to determine the impact of the intervention and the efficacy of duplicating that impact in the future. In this intervention, fidelity of implementation was assessed using multiple indicators, as indicated in Table 5. These indicators included specific characteristics of lessons to be provided for the treatment group, such as number provided, length, number attended by each student, and topic. Others indicated the activities in which students engaged, including the design of mastery goals, attempts to apply new strategies within classwork, and response to reflective prompts on goals and strategy application. These indicators are also illustrated in the logic model and theory of treatment (see Appendices A and E).

A structured diary completed by each student throughout the intervention served as a vehicle for engagement in the cycle of self-regulation. The structured diary was shared with students through Google Classroom, and the researcher reviewed it on an ongoing basis and at the completion of the intervention. Within the structured diary, students were asked to engage in self-observation and self-reflection, both components of the performance phase of Zimmerman's (2009) cycle. Responses to reflective prompts required students to engage in the process of self-evaluation, prompting them to attribute outcomes to the behaviors in which they engaged. After engaging in the cycle multiple times, students might develop the ability to modify their strategy used to make it more effective. Until students could do so on their own in a proactive manner, the structured

diary provided prompts to scaffold their thinking and guide them through the process of self-regulation. Completion of various components of the structured diary provided measurement for the fidelity indicators (Table 5)

Table 5

Indicators of Fidelity

Fidelity Indicator	Data Collection Tool	Frequency
20 lessons (30 minutes each), focused on components of Zimmerman's (2009) cycle of self-regulation	Spreadsheet recording lesson dates, topics, times, and student attendance.	Monitored and recorded at each session. Analyzed at completion of intervention.
Student attendance for lessons	Spreadsheet recording lesson dates, topics, times, and student attendance.	Monitored and recorded at each session, analyzed at completion of intervention.
Student design and implementation of at least one mastery goal.	Structured diary: mastery goal prompts.	At least one goal designed by 100% of students.
Student completion of required reflection prompts related to goal progress and strategy application.	Structured diary: reflection prompts	Weekly, analyzed at completion of intervention.
Student use of self-regulation strategies in class.	Structured diary: reflection on attempted strategies	At least one strategy used per week, analyzed at completion of intervention.

Lesson characteristics. Lesson characteristics included the number, length, and topic for each lesson. Data were collected in the form of a spreadsheet recording lesson dates, times, and topics, as well as student attendance. According to the design of the intervention, 20 lessons were provided for the treatment group. This number of lessons

was determined based on the topics to be covered, as well as the school schedule, and were specifically listed on the logic model (see Appendix A). The period available for each lesson to occur represented less than the typical class period, allowing the intervention to occur as a series of mini-lessons with a brief application. The time within each lesson was maximized using classroom routines to provide for maximum productivity (Pianta et al., 2012).

Each lesson addressed a component of one of the three phases of Zimmerman's (2009) cycle of self-regulation, which included three phases, as indicated on the logic model (see Appendix A): forethought, performance, and self-reflection. Evidence of the provision of these lessons is found in the formal lesson plans designed and implemented, as well as the record of lesson topics in Appendix B. While the provision of the lessons was an essential indicator, other indicators reflected student participation in the various phases of the cycle.

Student attendance. The provision of lessons was not sufficient in determining fidelity of implementation; additionally, students attend must attend the lessons. Attendance by students at 18 out of 20 (90%) allowed for implementation to occur with fidelity. A spreadsheet to track attendance data were reviewed weekly. Students who did not complete the 18 sessions ($n = 1$) were not included in the final analysis. There were several components within the cycle, as indicated on the logic model in Appendix A, t addressed within the 20 sessions, and students needed to attend lessons to engage in the complete cycle multiple times.

Student design of mastery goals. Implementation with fidelity was indicated by student engagement in the process, specifically their design of mastery goals. Goal setting

was the first step in the cycle of self-regulation. As a key form of task analysis, creating a mastery goal helped students to focus as they moved to the performance phase of the cycle (Zimmerman, 2009). While demonstrating the design of a mastery goal at least once was essential, one must note that for some students this took multiple attempts. Explicit instruction and feedback throughout the lessons assisted students in the design of these goals. Goals were recorded as a component of the structured diary and were analyzed at the completion of the intervention.

Student application of new strategies. As the foundation for the intervention, Zimmerman's (2009) cycle of self-regulation included three phases, the second of which related to performance, including self-regulation strategies and self-observation. Fidelity of implementation was indicated by the extent to which students applied strategies that were components of the performance phase within their academic lives. These might include the application of strategies within a classroom context or as students engaged in homework for that class. Students were asked to reflect on the strategies that they utilized within their structured diaries each week.

Student completion of required prompts. Once students created goals, the new learning as part of the cycle of self-regulation required them to implement action steps toward that goal and to reflect on this work. These steps were indicated by the performance and self-reflection phases of the cycle (Zimmerman, 2009). The evidence of this implementation and reflection was gathered through the structured diaries, as students recorded their steps and responded to specific prompts requiring them to reflect on their progress.

Outcome evaluation. The evaluation design selected for this intervention was a pretest-posttest control group design (Shadish et al., 2002). The control and treatment groups were composed of members of the seventh-grade cohort who consented to participate. Stratified random sampling was used to determine the groups (Shadish et al., 2002). Student data were gathered, including gender and disciplinary referral data, along with standardized assessments, attendance, and final grades (Table 6). This data served to ensure that students selected for each condition had similar academic profiles (see Appendix F). Because an intended outcome of the intervention was a decrease in disciplinary referrals related to classroom disruption and ways that might vary by gender, stratified random sampling was necessary to ensure that both treatment and control groups were made up of units equally representing levels of referrals, as well as gender.

Pre and post assessment. Once the treatment and control groups were identified, all units in both conditions ($n = 27$) completed a pre-assessment consisting of several self-reported subscales (Appendices G and H have survey item details). PALS subscales included Mastery Goal Orientation, Self-Handicapping Strategies, Academic Efficacy, and Disruptive Behavior (Midgley et al., 2000). Cognitive strategy use was also assessed using self-report scales from the Motivated Strategies for Learning Questionnaire (MSLQ), including the Cognitive, Metacognitive Self-Regulation, and Time and Study Environment scales (Pintrich, Smith, Garcia, & McKeachie, 1991). These same assessments were administered at the conclusion of the intervention to all students in both conditions. Additionally, disciplinary referral data were collected for each student from fifth and sixth grades (Jordan Harbor Middle School [JHMS], 2018c) compared to data regarding disciplinary referrals earned during the timeframe of the intervention.

Table 6

Data Sources and Collection Plan

Indicator	Data Source(s)	Frequency of Collection
Increased self-reported self-efficacy	PALS Academic Efficacy scale	Twice: pretest and posttest
Increased self-reported mastery goal orientation	PALS Mastery Goal Orientation scale	Twice: pretest and posttest
Decreased self-reported self-handicapping behavior	PALS Academic Self-Handicapping Strategies scale	Twice: pretest and posttest
Decreased self-reported disruptive behavior	PALS Disruptive Behavior scale	Twice: pretest and posttest
Increased self-reported cognitive strategy use	MSLQ scales[a]	Twice: pretest and posttest
Decreased number of disciplinary referrals related to classroom behavior	School Wide Information Systems (SWIS) disciplinary referral report	At conclusion of intervention, compared to two previous years (Grade 5 and Grade 6)
Mastery goal creation	Creation of mastery goal in structured diary	At least one mastery goal, analyzed in February
Reflection on goal and strategy application	Response to reflection prompts in structured diary	At least one reflection completed per week, analyzed in February
Application of strategies in core classes	Weekly reflection on use of specific strategy in class or at home	At least one strategy reflection each week, analyzed in February
Gender	PowerSchool data	Twice, beginning and end of intervention
Prior academic performance	SBA assessment results	Once, summer preceding intervention

Note. [a] Cognitive Strategies, Metacognitive Self-Regulation, Time and Study Environment scales.

A pretest was considered essential to the design of the evaluation. The mediating variables included increases or decreases in self-reported behaviors and strategies. If the intervention was effective, there might be a decrease in self-reported self-handicapping and disruptive behavior. Likewise, an effective intervention might also result in an increase in self-reported academic efficacy, mastery goal orientation, and use of cognitive strategies. To determine the impact of the intervention, one must determine the level at which each student began the school year. Using a control and treatment group allowed for a comparison between the change that occurred and an ability to conduct a statistical analysis of whether the variance was significant (Shadish et al., 2002).

Patterns of adaptive learning. The Patterns of Adaptive Learning Scales (PALS) were designed based on a study of the relationship between personal goal perceptions and classroom goal perceptions, as well as the manner in which these changed as students completed elementary school and transitioned to high school (Midgley, 2002). This longitudinal study used goal orientation theory as a framework and was conducted initially in the mid- to late-1990s. The research by this group not only led to an extensive body of research regarding achievement goal theory, as related to the emotional, social, and academic well-being of adolescents, but also to the development of survey measures. These scales were published in 1997 and were continuously refined, improved, and new scales added, with the most recent scales published in 2000 (Midgley et al., 2000). PALS were used in elementary and secondary classrooms.

Although PALS included student, teacher, and home life scales, for the purposes of this study, only student scales were utilized. The scales might be used either together or individually (Midgley et al., 2000). The researchers used each scale to ask students to

respond using a five-point Likert scale, anchored at *1 = Not at all true, 3 = Somewhat true,* and *5 = Very true* (Midgley et al., 2000). There were 21 items on this component of the assessment. Internal consistency measures for each scale were provided to demonstrate reliability. Several analyses indicated that the scales were reliable and valid (Anderman & Midgley, 1997; Midgley et al., 1998).

Mastery goal orientation. The Revised Mastery Goal Orientation scale consisted of five items (Appendix G), which was revised in 2000 to eliminate references to behaviors (Midgley et al., 2000). When students oriented to mastery goals, they worked to extend their understanding and focus attention to the task. Researchers have associated this orientation with adaptive patterns of learning (Midgley et al., 2000). Items included "One of my goals in class is to learn as much as I can," and "It's important to me that I improve my skills this year" (Midgley et al., 2000, p. 20). The scale indicated good internal consistency (α = .85; Midgley et al., 2000).

Academic efficacy. The Academic Efficacy scale reflected students' perceptions of their competence to do class work (Midgley et al., 2000). This scale indicated acceptable consistency (α = .78) and included five items. Items included "Even if the work is hard, I can learn it," and "I'm certain I can master these skills taught in class this year" (Midgley et al., 2000, p. 20).

Academic self-handicapping strategies. Some students used strategies that allow an alternate reason to lack of ability as a reason for poor performance. For example, students might "fool around the night before a test" or "look for reasons to keep them from studying"(Midgley et al., 2000, p. 20). Items in this subscale were listed regarding scenarios, in which "some students" engaged and asked students to indicate, "How true is

this of you?" (Midgley et al., 2000, p. 20). According to the PALS manual (Midgley et al., 2000), Cronbach's alpha for this subscale was in the good consistency range (α = .84).

Disruptive behavior. Disruptive behavior referred to the level of engagement in behaviors that disturb classroom instruction. Items on this scale included "I sometimes annoy my teacher during class," and "I sometimes disturb the lesson that is going on in class" (Midgley et al., 2000, p. 20). There was also good internal consistency for this scale (α =.89; Midgley et al., 2000).

Motivated Strategies for Learning Questionnaire. A team of researchers from the National Center for Research to Improve Postsecondary Teaching and Learning and the University of Michigan School of Education designed the MSLQ (Pintrich et al., 1991). This self-report questionnaire was developed based on the social cognitive view of motivation, in which a students' levels of motivation linked to their ability to self-regulate, and in which these were not assumed static traits (Artino, 2005). Instead, motivation and strategies of self-regulation were dynamic, and these might even change based on context (Artino, 2005).

Although originally developed for use with college students, researchers have used the MSLQ with middle school students, as well. For example, Pintrich and DeGroot (1990) utilized the questionnaire when studying the relationship between classroom academic performance, motivational orientation, and self-regulated learning with seventh-grade science students. This study and others (Pintrich, Roeser, & DeGroot, 1994) indicated that middle school students did not make distinctions between the factors of rehearsal, elaboration, and organization, as well as college students. Therefore, when utilizing the MSLQ with younger students, using a general cognitive scale, including all

of the cognitive strategies rather than separated, was recommended (Wolters, Pintrich, & Karabenick, 2003). The alphas for using the Cognitive scale (α = .83 to .88) and the Metacognitive Self-Regulation scale (α = .63 to .74) were acceptable based on several studies (Pintrich & DeGroot, 1990; Pintrich et al., 1994). Similar to PALS, the 15 available scales that made up the MSLQ were designed to be used together or singly to fit the needs of the researcher (Pintrich et al., 1991). Cronbach's alpha values for the subscales indicated internal consistency at acceptable levels, and confirmatory factor analyses results indicated reasonable factor validity (Pintrich et al., 1991).

Each question on the MSLQ was designed for a student rating on a 7-point Likert scale, with *1* as *not at all true of me* and *7* as *very true of me*. Several items were reverse coded, marked "reverse," and the score for the positively worded version of the question was determined by a simple subtraction from 8. Norms were not provided for the MSLQ because responses might vary by course. The learning strategies assessed aligned with the content of lesson plans to occur during the intervention (see Appendix B).

Cognitive scale. When used with a middle school sample, the Rehearsal, Elaboration, and Organization scales of the MSLQ were combined into one Cognitive scale, as researchers have determined that students in this age range have difficulty distinguishing between the three behaviors (Wolters et al., 2003). Four items indicated using rehearsal strategies, including "When I study for this class, I practice saying the material to myself over and over," and "I make lists of important terms for this course and memorize the lists" (Pintrich et al., 1991, p. 20). Rehearsal strategies might involve reciting or naming items from a list learned. Although these strategies might not help

students to create internal connections between material and links to prior knowledge, these were assumed to influence attention and encoding processes (Pintrich et al., 1991).

The learner used elaboration strategies that included summarizing, paraphrasing, and generative note taking to store information into the long-term memory by building connections (Pintrich et al., 1991). Items included "When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions." and "When reading for this class, I try to relate the material to what I already know" (Pintrich et al., 1991, p. 20).

The 4-question Organization strategies scale focused on strategies students used to select information and construct connections among the information. Organization strategies were effortful and required the student to be involved in the task by outlining, selecting the main idea, or clustering (Pintrich et al., 1991). Items included "I make simple charts, diagrams, or tables to help me organize course material," and "When I study for this course I go over my class notes and make an outline of important concepts" (Pintrich et al., 1991, p. 20).

Metacognitive self-regulation. This scale focused on the control and self-regulation aspects of metacognition, rather than the knowledge component, which included the three processes of planning, monitoring, and regulating (Pintrich et al., 1991). Planning included goal setting and task analysis, monitoring requires students to use strategies consciously to integrate new material with prior knowledge, and regulating helped students to check in and correct as they were engaged in a task (Pintrich et al., 1991). This scale included several reversed items, such as "During class time I often miss

important points because I'm thinking of other things" (Pintrich et al., 1991, p. 20). This item was reversed because this it did not describe an effective metacognitive strategy.

Time and study environment. Students had to manage and regulate their own time and study environment, which required them to set aside time for studying, as well as effectively using that time (Pintrich et al., 1991). The ability to create and manipulate the environment in which one studies was also an essential strategy. Items included "I usually study in a place where I can concentrate on my course work," and "I make sure I keep up with weekly readings and assignments for this course" (Pintrich et al., 1991, p. 20).

Structured diary. The study was designed using a mixed methods approach, reflecting a methodological stance designed to collect both quantitative and qualitative data to increase depth of understanding (Creswell & Plano Clark, 2011). The information gathered was directly related to the experiences of middle school students, specifically middle school boys, as they oriented themselves toward mastery of skills and concepts. To do so, students must engage in the process of the intervention as designed, an essential component of which was self-reflection and an ability to make adjustments based on that reflection. The conduct and design of this study allowed the researcher to gain further insight into a human reality in a manner that was pragmatic and considerate of the impact on the subject (Creswell & Plano Clark, 2011).

Self-regulation was a dynamic event or activity, occurring in a fluid and context-specific manner (Cleary, 2011). Because of this fluidity, a student's ability to self-regulate might not effectively be captured with the traditional form of aptitude assessments, such as self-report scales (Cleary, 2009). Self-report scales were decontextualized and did not

establish specific task conditions for students to respond (Cleary, 2009). Using qualitative measures, in addition to self-report scales, allowed for an assessment of process, as well as product (Cazan, 2012).

Methods for understanding the cognitive and metacognitive processes in which students engaged and the potential changes that occurred in these processes throughout the intervention included using think-aloud protocols, observations, interviews, or learning journals (Cazan, 2012). These methods could provide a more rich and descriptive understanding of student thought processes (Cazan, 2012). Specifically, students engaged in reflection using structured diaries throughout the intervention. These structured diaries served both as a component of the intervention, as well as a measurement tool for the impact of that intervention (DeLongis, Hemphill, & Lehman, 1992).

Procedure

This section contains the specific components of the intervention as delivered to the students in the treatment group, including details of lessons to address components of the self-regulatory cycle and methods for data collection. The intervention was designed to take place over 20 sessions during the first semester of the 2017 to 2018 academic year, with sessions occurring on a weekly basis with some room for short or holiday weeks in the school calendar. The size of the treatment group (n = 14) allowed the group to meet together each week. The group met as whole, except for two weeks, in which students had a choice about which day to attend based on competing needs, and the same session was conducted each day. Additionally, Session 15 was conducted as a self-study for several reasons, including a series of weather interruptions influencing the academic

needs of the students. Table 7 indicates the planned timeframe and duration of the intervention.

Table 7

Intervention Timeline, Duration, and Description

Activity	Timeline	Duration	Description
Pre-assessment	September 2017	One period (45 minutes)	Pre-assessment for students in both conditions: PALS and MSLQ scales.
Explicit lessons regarding cycle of self-regulation.	October 2017-February 2018	20 sessions (30 minutes each)	See Appendix B for detailed outline of individual lessons.
Post-assessment	February 2018 (At completion of 20 lessons)	One period (45 minutes)	Post-assessment for students in both conditions: PALS and MSLQ scales.

Intervention. The lessons provided for students in the treatment group were designed to instruct explicitly about the cycle of self-regulation in an order that mimics the cycle. As students engaged in the cycle initially, they received instruction about strategies related to each phase. To increase the metacognitive level at which students engaged in strategy use, students were taught not only the strategies but also developed an understanding of the cycle itself. An understanding of the strategies that students used and why these might help students to utilize the strategies consciously at the time they needed the strategies. Thus, the 20 lessons from Appendix B follow a cyclical pattern, returning to lessons on each phase multiple times throughout the intervention.

Also included in the plan of the intervention were details about the mode of instruction and the follow up that occurred in the structured diary related to each lesson.

The instructional design included modeling of specific strategies, instructing about a variety of strategies, students choosing about modes of engagement in the work, and considering lesson designs that were engaging and brain targeted. Students completed work and maintained their structured diary within the Google platform, using a Google Classroom set up specifically for this intervention. Students utilized Google Classroom within their classes in the school and were familiar with the structure.

Although students had a brief description of the intervention to consent to participation, detail was necessary for them, as they started the work of the treatment. The first lesson was designed to introduce the cycle of self-regulation, the routines utilized during the lessons, and began the process of evaluating learning needs to help design goals. Routines included the opening restorative circle to begin each session (Costello et al., 2010), an introduction to the Google Classroom, and the follow-up reflection for each session. This reflection included a scale, logging time on task, or a reflective short answer prompt. Topics and reflection prompts for each lesson are listed in Appendix B.

The instructional strategies utilized throughout the intervention were designed to increase student engagement with the material, allow for practice of skills, and collaboration among peers. For example, the Chalk Talk routine was utilized several times (Ritchhart, Church, & Morrison, 2011). In this routine, easel papers were set up around the classroom with various discussion prompts or ideas (Ritchhart et al., 2011). Students were asked to remain silent, write responses to each prompt, and provide written responses to their peers. Because this discussion occurred silently, all voices were heard, and students might be more willing to engage in idea sharing. Additionally, the routine

created an opportunity for movement in the classroom, which could positively influence cognition (Hardiman, 2012).

First iteration. The intervention was designed to guide students through the cycle of self-regulation three times, providing instruction on the components of each phase. In this way, students built on their understanding of each phase and gained additional strategies, instruction, and understanding each time they repeated the cycle. The first phase of the cycle, forethought, required students to make a first attempt at designing a mastery goal (Zimmerman, 2009), requiring an understanding of mastery goals and a brainstorm of potential areas of focus for the design of goals. Introducing the SMART goal framework (Cash, 2016) included using multiple modalities (e.g., a video introduction, graphic organizers for goal design, and sample student goals as models). Students participated in a classroom routine (Ritchhart et al., 2011) or protocol designed to assist them in brainstorming potential goals.

The discussion of the forethought phase continued with a definition and discussion of a scenario regarding self-efficacy (Brier, 2010). The scenario and discussion questions emphasized several key points related to self-efficacy, including focusing on progress, recognizing strengths and weaknesses, the changing nature of ability levels, trying new strategies, and not giving up (Brier, 2010). Students also shared their ideas about the focus for their goals with classmates during the opening circle and engaged in self- and peer-assessment of their draft goals. Peer review served the purpose of gaining feedback on students' goals and providing feedback to others to apply to their work. Students finalized their first attempt at a mastery goal in their reflections, enabling them to have a specific focus for the lesson sessions moving forward.

The next series of lessons focused on key aspects of the performance phase first included key aspects of time planning and management (Appendix B). Using several organizers as supports, students thought about when they did their homework, ways they used and planned their time, and strategies for organizing and thinking about these more effectively. Emphasis was placed on the importance of developing and using effective routines for study time, and models of to-do lists to improve student organization and monitoring of work completion. Students were taught to use actual assignments and workloads to complete and maintain daily and weekly calendar templates. Activities included identifying activities as time wasters and time users, and prioritizing activities based on this identification (Hansen, 2013). Structured diary reflection follow-up included reflection on actual time spent on homework and routine planning steps using a time management graphic organizer (Schumm, 2001). The time management component of the performance phase extended into a lesson later in the intervention focused on planning or project mapping for long-term projects. The timing of the lesson was based on the assignment of an actual project by the academic team of teachers, allowing students to work to plan backwards from the due date to make all deadlines. Several graphic organizers were provided as models for students to choose the planning tool.

As part of the performance phase, several lessons focused on providing opportunities to receive explicit instruction and engage in using note-taking strategies. The concept of student choice was vital because choice and control increased motivation (Hardiman, 2012). Therefore, three specific lessons occurred, focused on using strategies including graphic organizers, concept mapping, and Cornell notes (Cash, 2016). Students were asked to interact with and brainstorm using various strategies. For example, several

graphic organizers were presented, and students then engaged in a collaborative brainstorming to think about where each model might be useful in their academic lives. Students also utilized new strategies, both with the material they brought to class and through sample note taking scenarios to model use.

The final phase of the cycle, self-reflection, was first addressed as a lesson regarding goal monitoring and attribution (Appendix B). Students might not see the connection between the strategies they used or did not use and the results they received; therefore, one must define and explicitly discuss attribution. Students could reflect on their own strategies used from previous weeks and the connected results, as well as using a graphic organizer to help them make specific connections between their actions and results. This lesson involved individual conferencing and reflecting with students using a graphic organizer.

Throughout the series of lessons, regular lessons were dedicated to reflection on goal progress and the potential creation of new goals. These lessons encompassed and modeled using a cycle, representing instruction in the forethought phase and providing an opportunity to revisit and build on components of this phase. Thus, each time students engaged in reflection, the cycle began again (Zimmerman, 2009). These reflection and goal setting lessons led to additional performance phase lessons.

Second iteration. The second rotation through the cycle included lessons linked to the performance phased on the design of an effective study environment, an analysis of current study environments, and characteristics that might help students to make these environments more effective. Students drew or described their current study environment, and then compared it against a checklist of the characteristics of effective study

environments. Students were asked to make and reflect on at least one change/improvement in that environment.

Although students were asked to engage in metacognition throughout the previously described lessons, the concept was not explicitly discussed until this point. A lesson on metacognition required a definition, several examples, and some strategies to help students to engage in strategies to help them become more metacognitive. For example, Brier (2010) suggested a series of questions that students could ask themselves, referred to as "self-talk," to help them plan and reflect on their learning. This self-reflection, which occurred in the final phase of the cycle, led to a lesson in which students monitored goal progress, perhaps created a new goal, and started the cycle for a third and final time (Zimmerman, 2009).

Third iteration. The focus of performance phase instruction for the final cycle was strategies for test preparation (Appendix B). Students might have successful strategies they used for various styles of assessments. Therefore, the first lesson on this topic engaged students in a brainstorm of the strategies that they currently used. Subsequent lessons focused on methods for studying from notes and specific rehearsal or memory aids. Students might not know what to do when asked to study, and the provision of a variety of strategies gave them the tools they need. Additionally, because there was a shift in the school culture for students to engage in re-takes for assessments, strategies for successfully engaging in this process were discussed (Wormeli, 2006). A checklist of steps to take when a re-take was available would help students advocate for themselves to avoid repeating the same results. This checklist was useful to students beyond the scope of the intervention.

With completing the final phase of self-reflection, students were asked to reflect on their goal progress and the influence of the intervention. Once the series of 20 lessons were completed, the post-assessment was administered to both treatment and control groups. This process allowed for data analysis regarding the impact of the intervention.

Data collection. The mixed methods convergent design of the intervention required the collection of quantitative and qualitative data to evaluate both process and outcomes. Data were collected in several formats, including pre-existing data sources, surveys, and responses to various structured diary prompts (Table 8). Students independently completed structured diaries throughout the intervention, which were collected and analyzed at the completion of the intervention. Components of the structured diary contributed both quantitative and qualitative data.

Table 8

Mixed Methods Data Collection

Measure	Quantitative	Qualitative	Data Collection Type	Timeline
PALS Surveys	X		Survey	September 2017 and February 2018
Motivated Strategies for Learning Questionnaire (MSLQ)	X		Self-report survey	September 2017 and February 2018
School Wide Information Systems (SWIS) data	X		Disciplinary referral data	August 2017 and February 2018
SBA data	X		Standardized assessment data	August 2017
Participation data: Attendance records	X		Attendance at all sessions	Monitored and recorded at each session. Analyzed in February 2018
Participation data: Creation of mastery goal	X		Student work	Throughout intervention. Analyzed February 2018
Participation data: Completion of reflection prompts	X		Student work	Throughout intervention. Analyzed February 2018
Reflection prompt responses		X	Student work	Throughout intervention. Analyzed February 2018
Application of strategies in class	X	X	Student work	Throughout intervention. Analyzed February 2018

Surveys were administered using Google Forms. All students in both the treatment and control groups completed these surveys. Once the postassessment was

completed, survey data from pre and postassessments were uploaded into Excel for further analysis.

The researcher shared the structured diary with the students and stored it in a Google Classroom explicitly created for the intervention. The Google Classroom served as a method for storing resources for students to access after the intervention concluded. A variety of information was gathered from the structured diary, the quantitative components of which were included as part of the participation data and recorded in the Excel data table for quantitative analysis.

Pre-existing data included SBA scores from spring 2017 (see Appendix F), and disciplinary referral data related to classroom behaviors from 2015 to 2016 and 2016 to 2017. These data were gathered prior to the beginning of the treatment in an Excel table and analyzed in conjunction with survey data at the conclusion of the intervention.

As a component of the process evaluation, participation data were gathered. These included attendance data, as well as indicators of completion of reflective prompts and goal writing. Attendance was maintained using an Excel table, and completion of structured diary tasks were gathered in the analysis of the structured diary.

Data Analysis

The evaluation of the mediating variables included two levels of analysis. In response to RQ1 and RQ2, the researcher determined if students in the treatment group demonstrated increased or decreased as applicable to a greater extent compared to those in the control group. Additionally, the evaluation included the extent to which males in the treatment group demonstrated change compared to females in the treatment group and

the members of the control group as a response to RQ3. In this way, one could determine whether the intervention had a more significant impact on males compared to females.

Measurement beyond short-term outcomes might not be possible within the scope of this study, as indicated on the logic model (Appendix A). However, small comparative differences might be determined based on an analysis of disciplinary referrals earned during the period of the intervention, as compared to those earned during the same period each of the previous 2 years. Additional evaluation of impact was gathered using the structured diary completed by students in the treatment group. This qualitative component allowed for a greater representation of the complexities of the problem and intervention, as opposed to one objective result (Creswell & Plano Clark, 2011). Structured diaries served both as a component of the intervention, as well as a measurement tool for the influence of that intervention (DeLongis et al., 1992).

A mixed methods approach was used to reduce mono-method bias as a threat to construct validity (Shadish et al., 2002). While the scales utilized for pre and postassessments each required students to self-report, additional measures were also used. These included analyzing the structured diaries using a constant comparison analysis (Corbin & Strauss, 2015), as well as disciplinary referral data. Not only did these multiple data sources reduce a threat to validity, but these also addressed concerns regarding self-reported data. Specifically, self-reported data might not capture the dynamic nature of self-regulation (Cleary, 2011) or provide information about process, along with results (Cazan, 2012).

Table 9

Quantitative and Qualitative Data Sources by Research Question

Research Questions	Quantitative	Qualitative

To what extent does explicit instruction in a cycle of self-regulation lead to an increase in self-efficacy, mastery goal orientation, and cognitive strategy use?	PALS MSLQ	Control group exit tickets Treatment group reflections Researcher's Journal
To what extent does explicit instruction in a cycle of self-regulation lead to a decrease in avoidance behaviors including self-handicapping and disruptive behaviors, and thus a decrease in disciplinary referrals?	PALS Student discipline data	Control group exit tickets Treatment group reflections Researcher's Journal
Does an intervention designed to decrease avoidance behaviors by providing instruction in self-regulation impact male students differently than female students?	PALS MSLQ	Control group exit tickets Treatment group reflections Researcher's Journal

Quantitative analysis. Students completed both pre and postassessments using a Google Form in Google Classroom. Raw data were gathered from both assessments and cleaned before being entered into SPSS for analysis. To maintain process fidelity, only those students in the treatment group who participated in 18 out of 20 sessions were considered to have completed the treatment. Similarly, one control group student who completed the assessment but whose responses did not upload correctly was removed, as well.

Student responses on the PALS and MSLQ subtests were totaled by category to determine a total score per student, per construct. Student responses for each item on each scale were added to provide one number representing a total for the scale. This total per student was used for analysis of each scale. PALS survey results were organized and totaled by student for each of the four scales: Mastery Orientation, Academic Efficacy, Self-Handicapping Strategies, and Disruptive Behavior. This total created one score per student for each scale to be used for further analysis.

Because the sample was a middle school population, the MSLQ scales of Elaboration, Organization, and Rehearsal were coded as one scale (Wolters et al., 2003). Thus, the Elaboration, Rehearsal, and Organization scales were consolidated into one Cognitive scale for analysis, along with scales for Metacognitive Self-Regulation and Time/Study Environment. Additionally, several items on the MSLQ were marked as "reversed," and these ratings were reversed before adding into the subtest totals (Pintrich et al., 1991). The MSLQ included several items asked as reverse questions. To prepare for coding, these were switched based on the instructions in the MSLQ manual (Pintrich et al., 1991). Therefore, student responses of *7* on the Likert scale became a *1* for coding, and a *1* became a *7*. The manual indicated that the simplest way to conduct this conversion involved subtracting each response from 8 (Pintrich et al., 1991). The new response numbers were recorded for further coding and analysis.

Students' attendance was examined and tracked, and data were not included for any student who did not attend 18/20 sessions ($n = 1$). Additionally, as indicated in Table 8, each student responded to reflection prompts each week, as well as completing the construction of at least one mastery goal. The quality of the responses was analyzed qualitatively; however, regarding process evaluation, one must know the extent to which students participated in required components.

Data were uploaded from Excel into SPSS for analysis. Paired sample *t*-tests were conducted to examine differences in self-reported ratings on PALS and MSLQ scales from pre to posttest (see Table 9). To answer RQ1 and explore if participation in the intervention changed a student's goal orientation, academic efficacy, self-handicapping strategies, or disruptive behaviors, paired sample *t*-tests were conducted on the PALS pre

and postmeasures. Paired sample *t*-tests were also conducted using MSLQ pre and postmeasures of cognition, metacognitive self-regulation, and time/study environment to respond to RQ2.

Analysis of pre and posttest data were conducted in response to the research questions. To determine significant growth as a whole for both conditions, several *t*-tests were conducted, including both paired sample and independent sample *t*-tests. Tables with results are included in Appendices F and G. Analysis occurred regarding changes in response for each variable, as well as differences and correlations by gender based on the research questions. Paired sample *t*-tests were conducted to analyze the relationship between pre and posttests for all students in both conditions. Students were broken down into conditions, and paired sample *t*-tests were conducted to determine any statistically significant changes by condition.

Correlation among skills indicated the level of isolation of skills because focus and improvement on one skill might be related to improvements in another. Therefore, a bivariate correlation analysis was also conducted. This process occurred by one using MSLQ scales to determine what, if any, relationships existed.

In addition to determining changes for students in the treatment group based on survey results, an analysis was also conducted by gender for the treatment group in response to RQ3 regarding the impact of the treatment on males as different from females. Focusing on the treatment group, pre and postassessment results were then analyzed by gender, with an independent samples *t*-test. Independent sample *t*-tests were conducted with the treatment group, as split by gender for each of the scales.

Finally, school-wide disciplinary referral data were gathered in response to RQ2. This data encompassed only the time of the year in which the intervention occurred. These data were reviewed as raw data in comparison with referral data from previous years.

Qualitative analysis. There were multiple sources of qualitative data collected. Students in the control group completed weekly exit tickets reflecting on questions similar to those of the treatment group. Treatment group data sources included a series of structured diary prompts at the completion of each session, as well as artifacts collected during lesson participation. Structured diary prompts included a series of reflective prompts, short answer questions, self-report scales, and regular feedback regarding application of strategies (refer to Appendix B). Additionally, the researcher maintained a reflective journal after each session, which also provided qualitative data for analysis, including conferences with students and student responses during the opening circles.

A qualitative analysis of the structured diaries, in conjunction with lesson artifacts and the researcher's journal, assisted in greater representation of the complexities of the problem and intervention compared to merely analyzing one objective result (Creswell & Plano Clark, 2011). The qualitative analysis process included several steps, as described by Corbin and Strauss (2015). Using the constant comparison strategy, an initial examination of the reflective responses was completed to record initial thoughts and ideas.

Both deductive and inductive coding was used to gain a deeper understanding of the available data (Corbin & Strauss, 2015). Utilizing the constructs indicated by the research questions, data were coded using a deductive process, in which evidence of each

construct was gathered. Then, an inductive process was utilized to determine further themes (Ciampa & Gallagher, 2016). Data were then gathered by these themes to allow for an in-depth, in some cases, longitudinal view using data from several sources. Work samples included structured diary responses (e.g., strategy application, class work, and the instructor reflection log with data from class discussion).

In response to RQ3, students' responses were also reviewed by gender. Using this method, data from structured diaries were gathered and grouped by concepts to highlight different components of the same phenomenon and raise additional questions and findings (Corbin & Strauss, 2015). Attention was paid to both positive and negative cases (Corbin & Strauss, 2015). Data from the various qualitative sources were reviewed multiple times as questions or themes emerged to provide specific support for analysis.

Conclusion

An intervention based on the research related to motivation and achievement goal theory was implemented, and the results were analyzed to determine the impact. The mixed methods approach provided data regarding short-term outcomes, with some potential influence on a medium-term outcome. Proximal outcomes, including decreased self-reported, self-handicapping, and engagement in disruptive behavior, as well as increased self-reported academic efficacy, mastery goal orientation, and cognitive strategy use, might lead to a decrease in avoidance behaviors, as measured by decreased disciplinary referrals related to classroom behavior. Beyond these short- and medium-term outcomes, boys might have experienced increased motivation, higher rates of engagement in post-secondary education, and higher earnings potential. A successful

intervention could be implemented as part of the core curriculum for all students at JHMS.

Chapter 5: Findings and Discussion

The purpose of this study was to evaluate the impact of explicit instruction in a cycle of self-regulation on aspects of middle school performance, specifically behavioral concerns for middle school males. Investigation occurred regarding whether instruction in the processes and strategies of self-regulation increased student abilities in components of self-regulation and decreased engagement in avoidance, self-handicapping, and disciplinary referrals. Analysis of results provided context for the research questions, as well as implications for future research and practice. The research questions for the study were:

RQ1: To what extent does explicit instruction in a cycle of self-regulation lead to an increase in self-efficacy, mastery goal orientation, and cognitive strategy use?

RQ2: To what extent does explicit instruction in a cycle of self-regulation lead to a decrease in avoidance behaviors including self-handicapping and disruptive behaviors, and thus a decrease in disciplinary referrals?

RQ3: Does an intervention designed to decrease avoidance behaviors by providing instruction in self-regulation impact male students differently than female students?

Process of Implementation

The intervention occurred over a series of 5 months, beginning in October 2017. Twenty lessons occurred with the treatment group; students learned about Zimmerman's (2009) cycle of self-regulation, the constructs and behaviors within the cycle, and engaged in explicit instruction and application of the strategies involved. Each session followed a similar routine and focused on a specific component of the cycle. The order of

lessons was determined to allow students to engage in the cycle several times. Additionally, lesson order was determined based on specific classroom needs. For example, a lesson on long-term planning was moved to a later date to include an actual long-term assignment.

Common to each lesson were several components. Classroom routines were essential in helping students know what to expect in the classroom, both academically and socially (Hardiman, 2012). Routines for establishing community and relationships were established for the beginning of each lesson. The researcher, also the students' principal, provided the instruction. These routines allowed students to interact with the instructor in a more personal manner to become comfortable with their peers in a way that would allow them to participate fully. Thus, each lesson started with a restorative circle (Costello et al., 2010), including a comfortable personal question such as, "What your favorite thing to do on a snow day?," or "What is one fun thing you did over vacation?"

A second-round question was asked that was more specific to the work scheduled for the day, providing an opportunity for students to begin thinking about the topic for the day. These questions included, "What is a current goal that you have?" or "What goes through your mind when the teacher says you are going to take notes?" (Appendix B). Opening sessions in this way allowed the researcher to gain a better understanding of each learner, pre-assess their thoughts about the day's topic, and observe the students as they thought and talked about themselves as learners.

At the conclusion of each session, students completed several reflective questions as a component of the structured diary. These questions linked to the discussion of the

day, and these required students to reflect on using strategies in the classroom or report their current goal or goal progress (Appendix B). The questions included responses to Likert scale type questions or required brief written responses.

The initial session of the intervention was conducted primarily to explain routines, get to know the students, and explain the processes in place. One of these processes, the nightly homework and strategy log, became an immediate concern. Students indicated they were unsure what they would log because they only ever had homework in one class. Student feedback regarding the nightly log was negative, and with the reduction of the homework component, the strategy reflection component was instead addressed through weekly reflections. A fidelity indicator included student logs of one strategy per week (Table 5), which was thus built into the structured diary prompts each week.

The intervention was designed to allow students to move through the three phases of the cycle and apply new learning as it occurred. The lessons in Appendix B are designated by the phase of the cycle based on focus. However, even when engaging in a lesson on a specific phase, overlap occurred with other phases. With each new iteration of the cycle, students identified a current SMART goal, learned new strategies, and reflected on progress. Movement through the cycle multiple times was essential to the intervention, and thus the implementation process was described in this way.

First iteration. The forethought phase of Zimmerman's (2009) cycle focused on task analysis, including goal setting and strategic planning, as well as self-motivation beliefs (e.g., self-efficacy, outcome expectations, and task value/interest). Sessions 2 and 3 introduced goal setting with an introduction to mastery and performance goals, the SMART goal format, a classroom protocol for brainstorming, and an opportunity to draft

and review with a peer a first SMART goal. Session 4 completed the first cycle through the forethought phase, with a definition of self-efficacy, an opportunity to apply this definition to a fictional scenario, and application of the concept to their own lives.

Sessions 5 through 10 focused on the performance phase of the cycle. Lessons occurred about time management (task strategies and metacognitive monitoring), as well as several sessions focused on a variety of note-taking strategies (task strategies). Students received opportunities to view models of time scheduling and note taking methods; they could apply these to their own lives. Reflection questions focused on application during the week in class settings, such as reflecting on which strategies worked best (see Appendix B for lesson details).

Session 11 introduced students to the self-reflection phase with a discussion and lesson focused on attribution. The term was defined, and students completed a graphic organizer with both academic and personal examples. Students were asked to list a result, whether it was what they wanted, what steps led to the result, and what they might do differently. This reflection prepared them to begin the cycle again with a goal progress-monitoring lesson.

Second iteration. The second time through the cycle started with Session 12, in which students reflected on their SMART goal and determined a next goal. Some students chose to continue focusing on the initial goal, and some had already made a change. Student goal monitoring occurred again at Session 16 and Session 20. Although goal reflection included some component of self-reflection, the result of each peer review and discussion was the determination of a new goal and start of a new cycle.

Sessions 13 and 14 focused on the performance phase, including using a recently assigned social studies project for applying long-term planning strategies. This lesson included teacher modeling, discussion, and collaborative work in planning personal action steps. In Session 14, students reflected on their study environments, some choosing to draw what it looked like and others choosing to answer a series of descriptive questions. Attention focusing strategies were utilized to create optimal study environments, and students reflected several times about what changes they might have made.

The second iteration concluded with Session 15, an independent session focused on metacognitive monitoring. Continuous weather disruptions led to backlogs of assignments and high levels of stress for students and teachers. Therefore, students received a packet of information about study environment distractions, and ways these could be helpful or not helpful. Students were asked to choose two monitoring activities during the week, including selection, use, and reflection on a strategy for avoiding distraction. Other students chose to engage in productive distractions, such as taking a music break, and reflected on the results. Additionally, all students logged their homework and time spent, including a reflection. Although not technically a session, students responded positively to this opportunity to have a choice about their focus for the week and returned for the final four sessions with renewed energy.

Third iteration. After once more reflecting and monitoring goals, the final cycle included several performance phase lessons on test preparation. Throughout this series of lessons, students practiced and discussed several test preparation strategies, including using mnemonics, utilizing flashcards, creating a study guide, and studying with friends.

At the request of the group, a final lesson focused on preparing for and taking standardized tests, as well as the strategies that might help them to be more confident and successful. The final session provided an opportunity for students to reflect and share their ideas and feedback using a Chalk Talk protocol (Ritchhart et al., 2011).

Process Evaluation

Analyzing the impact of the intervention on the students in the treatment group required an analysis of implementation fidelity. The intervention was designed to occur over a series of weekly sessions lasting 30 minutes during the first semester of the school year. However, because the recruitment process took longer than expected, sessions did not begin until October, and thus ran past the end of Semester 1. The first session occurred on October 5, 2017, and the last on February 13, 2018. Except for one, student attendance rates met the required 18 out of 20 sessions. Several illnesses influenced that student's attendance, and her data were not considered in the analysis.

Although initially planned to be weekly, the reality of life in a school interfered in several ways. After the first several sessions, students voiced concerns about the dates of some future sessions, which were then moved to a different day of the week. Because of this change, there were two weeks in which the group met twice. Additionally weather influenced the consistency of school for several weeks. Because there were several weeks without a full week of school, and students and teachers alike were working to maintain consistency, one session was designed as a self-study for students. During this week, students tracked their work over several nights and could choose one of several tasks regarding distractions during their study times.

Components of the intervention instruction and process were also considered as indicators of fidelity. These included student design and implementation of a minimum of one mastery goal, completion of weekly reflection prompts, and self-report regarding using self-regulation strategies in class. When meeting with the students in the treatment group, the researcher found it apparent that asking them to complete a log each night would have a negative influence on their participation and buy-in. Therefore, instead of requiring students to maintain their own ongoing logs, questions were asked each week as part of the reflection process for to report on using strategies in school and at home. This method was effective for gathering the necessary information and did not add any additional academic burden to the students. Thus, each of the fidelity components was addressed.

Outcome Evaluation

Outcomes for the intervention included short-, medium-, and long-term outcomes, as indicated in the Logic Model (see Appendix A). The analysis of data indicated the short-term and some initial indications of medium-term outcomes (see Table 10). Tables 10 and 11 show results of paired samples *t*-tests conducted using both PALS and MSLQ scales, comparing pre and posttest results, separated by condition. These results indicated few statistically significant results based on the pre to posttest analysis. The metacognitive monitoring scale indicated statistically significant changes for both conditions, while all other *t*-tests indicated nonsignificant results.

Table 10

Paired Sample t-*Tests for PALS and MSLQ: Control Group (*n = *12)*

PALS Scales	Pretest		Posttest		*t*-test results		
	M	*sd*	*M*	*sd*	*t*	*df*	*p*
Mastery Orientation	20.83	3.64	22.42	2.81	-1.89	11	.09
Efficacy	21.08	2.71	21.0	3.38	.15	11	.89
Self-Handicapping Strategies	9.75	3.70	8.75	3.02	1.82	11	.10
Disruptive Behavior	8.25	3.72	8.33	3.63	-.10	11	.92
MSLQ Scales							
Cognitive Scale	67.50	14.38	62.67	16.64	1.74	11	.11
Metacognitive Monitoring	59.92	11.52	51.75	10.86	3.84	11	.01
Time/Study Environment	40.75	8.84	41.67	8.16	-.70	11	.50

Table 11

Paired Sample t-*Tests for PALS and MSLQ: Treatment Group (*n = *13)*

PALS Scales	Pretest		Posttest		*t*-test results		
	M	*sd*	*M*	*sd*	*t*	*df*	*p*
Mastery Orientation	22.92	2.36	22.23	2.92	.75	12	.47
Efficacy	19.85	4.04	19.77	3.52	.09	12	.93
Self-Handicapping Strategies	11.08	4.25	10.38	4.07	.62	12	.55
Disruptive Behavior	8.92	3.57	10.08	4.31	-1.10	12	.29
MSLQ Scales							
Cognitive Scale	68.54	16.10	65.31	12.09	.89	12	.39
Metacognitive Monitoring	60.00	11.50	53.38	7.82	2.50	12	.03
Time/Study Environment	44.31	6.18	43.08	5.81	-.81	12	.44

Research questions for the study focused on the extent and direction of impact of the cycle of self-regulation on component constructs of the cycle. These indicators included self-efficacy, mastery orientation, and use of cognitive strategies.

Simultaneously, one questioned the extent that same cycle of self-regulation resulted in decreased engagement in self-handicapping and avoidance behaviors, and ultimately to a decrease in disciplinary referrals. Additionally, the problem of practice indicated concerns about male performance specifically, thus requiring an investigation of the influence of the intervention on males as differing from females. Thus, the resulting discussion regarding results indicated specific constructs assessed, as shown in the research questions, and provided additional themes to inform that analysis.

The study was designed as a mixed methods study for a deeper understanding of student understanding and growth. A mixed methods approach provided an opportunity to integrate the capacity of qualitative methods for an in-depth exploration, as well as rigorous quantitative comparisons between groups of individuals (Alivernini, Lucidi, & Manganelli, 2008). Therefore, these two components were integrated into a coherent whole for a more thorough understanding.

Changes in mastery goal orientation (RQ1). Throughout the intervention, there were multiple opportunities for students in the treatment group to write and reflect on goals, engage in peer discussion about their goals, and monitor their progress toward goals. The SMART goal format was introduced in one of the initial lessons, along with clear definitions of both mastery and performance goals. These definitions were revisited throughout the intervention.

A review of the responses to exit tickets from the control group, as well as for reflections from the treatment group, indicated a difference in trends as the intervention progressed. Students in both groups initially utilized class grades as indicators of goal achievement, denoting a performance orientation. Throughout the intervention, the

control group showed an increase in performance based goals or orientation based on this data, while the treatment group showed movement toward a more mastery based orientation. An analysis of written goals indicated that males in the control group increasingly referred to grades, while males in the treatment group did so with less frequency as the intervention went on (see Table 12).

Table 12

Percentage of Grade Specific SMART Goals by Condition and Gender

	Control		Treatment	
Week	Females	Males	Females	Males
1	--[a]	--[a]	100%	55%
2	25%	33%	75%	55%
3	--[a]	--[a]	75%	44%
4	20%	50%	--[a]	--[a]
6	25%	100%	--[a]	--[a]
8	33%	57%	50%	43%
11	--[a]	--[a]	75%	14%
13	66%	83%	25%	22%
19	20%	57%	25%	13%

Note. [a] Students were not asked to identify SMART goals each week.

A review of the written components of the mastery goal reflections indicated little change in the goals written by the control group. However, the treatment group primarily moved to more specific mastery, if not measurable, goals. Specifically, the boys in the treatment group (n = 9) demonstrated an ability to analyze their current performance (task analysis), select a specific skill to master, and engage in strategic planning toward that goal. Table 13 indicates samples from three students in the treatment group[2].

[2] Pseudonyms are used for student names and initials to protect confidentiality.

Table 13

Sample Treatment SMART Goals

Week	Student 1: Male (DM)	Student 2: Female (GO)	Student 3: Male (CO)
2	To get an A in science class	To get an A+ in Math class by the end of the semester.	I want to study at least 45 minutes before a test fluently before the end of the year
3	I want to get an A in science	To get an A+ in Math class by the end of the semester.	To study for 45 minutes fluently before a test
8	To become a better editor of my pieces of work.	To achieve an A+ in Math	My new goal is to keep track of homework and other things using a datebook
11	To use my time more efficiently for studying/projects	To have an A+ in all my classes by the end of the quarter	To write down homework in planner
13	To finish are (sic) social studies project	To earn an A+ in all my classes by the end of the semester	To write down homework
19	My current goal is to become a better editor	To understand all of my work	Use a calendar for DAILY tasks (emphasis written by student)

Built into the intervention were several opportunities for students to reflect on their goals and engage in discussion of their goals with a peer. During Session 12, students worked with a partner to discuss their current SMART goal. Each student was assigned a partner, completed a reflection sheet about their current goal, took successful steps toward that goal, reported items they struggled with, reported changes made, accessed additional needed resources, discussed whether they had accomplished the goal, and included the potential design of a new goal. This lesson represented the first time

students were instructed to make their goals other than grade focused. Partners worked to provide feedback, while the instructor conferenced with each group. During this conferencing, it became clear that without using a specific grade as a measure, students were not sure where to start to determine their focuses. Students were asked to focus on an area of struggle as a way to determine what they might improve. This process was effective for several students and assisted students in designing goals that were measurable and relevant. Table 13 shows sample goals for three students in the treatment group. Note that explicit directions provided for Week 19 required students to write a goal without referring to a specific grade.

To engage students in further personal reflection about their goal and action steps, the structured diary reflection at the conclusion of Session 12 was the following: What suggestions or ideas did you discuss with your peer today that you can use to work toward your goal, and what might you be able to track to think about your progress toward your goal? While discussions for both genders included focusing on areas of weakness that could be improved, turning struggles into goals, and ways to ask for help, there was a distinct difference between the genders regarding the ways to track progress. Of the girls in the treatment group (n = 4), one did not yet know what her goal would be, and three spoke about tracking progress with grades, PowerSchool to track grades, and performance in math. Conversely, of the boys in the treatment group (n = 9), two spoke about measuring based on grades, while others spoke about specific strategies they could measure. These included "Using a calendar and reflecting back on to it at the end of a quarter and seeing if I write out all my schedules every week" (DM), "I can use a timer whenever I study" (SW), and "making sure I have all my homework down" (HM). These

responses were the first in a series of progressively more specific and mastery oriented goals for these male students.

Changes in self-efficacy (RQ1). As a component of the forethought phase of the cycle of self-regulation related to self-motivation beliefs, self-efficacy was both essential to and due to strategy use and attribution (Zimmerman, 2009). The extent to which students judged themselves as capable played a role in academic achievement (Zuffiano et al., 2013). A review of PALS data and analysis of paired samples *t*-tests (Table 11) did not indicate statistically significant growth in this area for students in the treatment group. Qualitative data provided isolated examples of self-efficacy, without indicating compelling evidence of a pattern of growth or improvement. However, students seemed capable of identifying the aspects of self-efficacy when considering another person.

The Session 4 lesson on self-efficacy provided an opportunity for students to engage with a scenario related to a fictional student's level of self-efficacy. In reviewing the scenario, students demonstrated an understanding of self-efficacy as the ability to believe in your own abilities. Several students could explain that the student in the scenario should not give up, because according to DM, "All she has to do is make a plan or get help to make the plan, and take the action steps." SW thought she could "make a SMART goal for herself." LM judged herself "based on her personal progress."

Students also understood the actions in which a student with high self-efficacy might engage. These responses included RR's idea "that she would go to school every morning for extra help." Interestingly, LC identified with the student in the scenario and her struggles in math, indicating that she also wished she was good in math because "people want to be good at things, that makes them feel better."

Personal reflection regarding levels of self-efficacy was less consistent. During the initial session, students were asked to indicate whether they thought they were good test takers and whether they were good at taking notes. One tentative hand raised in response to a question about being a good note taker, and all other students indicated they did not think they were good at either. In the Session 2 reflections, several students indicated they could complete their homework assignments and explain why. For example, SW explained, "The homework was based on geometry and my dad does extra geometry with me." Sports were an entry into students' levels of efficacy; during the circle in Session 4, students indicated these were places they had more confidence.

Expressions of self-efficacy occurred throughout the structured diary reflections, though without student recognition. When specifically asked about self-efficacy in the Session 4 reflection, each student identified areas of low and high self –efficacy, but they had less than concrete action steps, such as "work harder," when asked how they might increase their self-efficacy. After Session 7, DM indicated he did well on an assessment after taking effective notes, but "it was not challenging so it does not really prove anything." Thus, the reason he did well was less connected to his efforts than to the ease of the assessment. In the Session 10 reflection, students were asked to rate the difficulty of their homework for the week, and whether they felt capable of completing the homework. Of the students who indicated their homework was above a Level 5 in difficulty (n = 4), all except one reported they felt capable of completing the homework.

Changes in strategy use (RQ1). The performance phase of Zimmerman's (2009) cycle of self-regulation included components of self-control, such as using task strategies, attention focusing, and self-instruction. Several aspects of this second phase of the cycle

were measured quantitatively using several scales of the MSLQ. When used with a middle school sample, the scales of organization, elaboration, and rehearsal were combined into one Cognitive scale, as students in this age range demonstrated difficulty distinguishing between these three behaviors (Wolters et al., 2003). An analysis of MSLQ data did not indicate statistically significant growth in this area (Table 11).

Qualitative data did indicate increases in self-reported strategy use throughout the intervention as demonstrated through weekly reflections as part of the structured diary, class work, and discussions. The constructs of organization, elaboration, and rehearsal were evident throughout, especially as indicated in the design of some mastery goals. Each of these constructs assists students in making connections with and between new knowledge. Students could link new and prior knowledge, storing information in either working memory, as in rehearsal, or long-term memory, as in organization and elaboration (Pintrich et al., 1991). These components were discussed and practiced primarily during a series of lessons on note taking.

Note taking. Note taking was introduced in Session 7, as the first of several lessons focused on specific strategies. Before note taking, students did not refer to note taking as a specific strategy in any of their responses, but they verbally explained during class circles and conversations that note taking was something they did not like doing. The Session 7 reflection asked students to explain how they had taken notes in the past, and responses demonstrated some basic understanding of strategies to use. These included color-coding, using headings and subheadings, and several (n = 6) students indicating that they wrote what the teacher said. Two students described what would be considered generative note taking, including JA who said, "I look at what we are going to

write and then put it in my own words," and HM who said, "I shorten them and put them in my own words."

In reflections directly following instruction, such as Session 7 that included several options of graphic organizers, some but not all students could provide specific levels of usefulness for the strategies. Examples included TB's statement: "I liked using the Venn diagram because you can compare two things and it makes it easy to find facts that are in common of the thing you are comparing." Additionally, HM stated, "The spider web map because you put the main idea in the middle, and then put evidence on the sides."

When students were asked after Sessions 8 and 9 to report on which note-taking strategies they tried, most noted strategies used in class, such as color-coding, bulleting, highlighting, or breaking down into sections. Linda explained that she had tried highlighting and that it was helpful "because it pointed out key information." Steve explained that color-coding "so I can study it easy" was effective because "I could easily see the important things that pop out and study those."

When asked what strategies they might try in the future, there was a greater variety. Options ranged from BJ's choice of spider map "for science;" to DM's flowchart because "it provides a lot of space;" and JB who thought graphs, tables, and charts "might help me to organize more." However, when asked after Session 10 how they knew their note taking was successful, most (n = 6) indicated that success would depend on a test grade. Linda indicated that she would know if she learned the information, and SW stated if "I know the definitions of the words and the details of it."

Rehearsal strategies: test preparation. A specific lesson on rehearsal strategies occurred over several sessions regarding test preparation, beginning in Session 17. When asked to describe action steps toward their goals prior to these sessions, students rarely referred to these strategies. One student referred to using Quizlet and flashcards after Session 3, as well as using flashcards as an action step for his goal work after Session 8. After the lesson on study strategies, students could choose a strategy they might use. Several indicated that brain based strategies, such as placing notes around their home or color-coding, would be helpful. However, one session later, when asked their most effective strategy, the most common response was studying with a friend. Thus, while students indicated understanding and relevance of particular strategies, in real life application, they demonstrated a tendency to return to a comfort zone.

Handling ambiguity and struggle. As students in the treatment group progressed through the intervention, they reflected on their learning and use of strategies and gained the tools needed to address their academic struggles. Evidence indicated that students were less likely to see situations as unsolvable and more likely to know what steps to take. This growth was most evident in work related to long-term project planning and note taking.

Students reported in a circle that long-term projects made them feel stressed and overwhelmed. Session 13 included using a specific long-term project from their social studies class, as well as several options of planners that they could use to plan for and complete the project. After the initial discussion of the importance of planning and backwards planning to complete the project earlier than due, students engaged in a work session where they actually planned this project. This planning seemed new learning for

most students based on their reflections at the end of the session. Additionally, in the reflection at the conclusion of the intervention, students reported this was one of the most useful sessions.

Similarly, when asked about note taking, students' reactions indicated a certain level of struggle and ambiguity in that they did not know how to take notes correctly. While students indicated during this circle that their skill level was about an 8 on a scale of 10 regarding taking notes, their confidence about the usefulness of their notes was substantially less. Many indicated they wrote what the teacher told them, and their confidence level with their own notes was a concern. As students worked through several sessions on note-taking, consistent reinforcement occurred that there was no right way to take notes, emphasizing one having a personal set of strategies to go to or a tool bag for personal preferences.

Active learning. Mastery goals presumed active learning, and students who held mastery goals focused on the task and mastering the material or skills to advance their learning (Kaplan, Middleton et al., 2002). Students in the treatment group increasingly demonstrated the application of new learning in their discussions and structured diary responses. Specific examples included the student who started to chunk his study time using a timer, took breaks during studying, or changed the way he recorded his homework after entering the classroom. Students especially appreciated opportunities and strategies for planning their work and their time, as indicated in the Session 20 reflections.

After specific note-taking and graphic organizer strategies were taught, practiced, and asked about in several reflections, evidence was seen of transfer to reflection

questions not directly asking about strategy use, indicating student understanding and ownership of the strategies. For example, Session 13 asked students once again to reflect on their academic goals and action steps. In this week, students spoke about planning (n = 3), flashcards, and taking notes. This finding indicated a difference from prior goal reflection questions, indicating some growth in using strategies. Ben stated, "Taking breaks while studying," and several students spoke about completing the quiz review. When asked explicitly about strategies, as in Session 19, students indicated what they had used to strategize. By Session 19, there were definite patterns and indications of student strategy use, and some explicit examples from all but four students, one of whom was absent for most of the week.

Active learning occurred when a student could determine an appropriate strategy, an action step, and the persistence to take that action step, even when faced with a less than positive result. After Session 17, the structured diary question asked students, "How do you respond when you do not do well on a test?" When the control group was asked this same question in Week 16, responses were nonspecific, although positive, behaviors. These included "I try to think how to fix it" (JM), and "how can I study better" (RJ). In contrast, several treatment group students (n = 5) described the actions they would take, including specific ways of preparing to take a retake and asking the teacher about something they did not understand. This finding indicated an understanding of the importance of learning the material, an ability to take an action step to do so, and a level of persistence. The difference between "study harder" and naming a specific strategy to engage indicated a sense of purpose, analysis of the task, selection of a strategy, and ability to self-regulate.

Changes in time and study environment (RQ1). Students who used effective study strategies for managing their time and study environment could schedule, plan, and manage their study time; use that time effectively; and set realistic goals for that use. This process could occur on a daily, weekly, or more long-term basis (Pintrich et al., 1991). The students in the treatment group, like many of their peers, led busy lives. They finished school and were engaged in multiple activities outside school, including sports practices that often went late into the night. Students indicated the need to work more effectively, gain strategies, and accomplish what they needed to do in the time available. Students regularly conveyed their struggles with studying as connected to the amount of time available and their levels of energy at the end of a long day.

The lesson focused on planning study time allowed students to see some of the openings they might have to complete work. Students received choices from organizers to use to plan their time. For some, it seemed there was not much flexibility for when they studied due to family, activity, and personal obligations. Thus, reflections indicated fewer concerns about planning when to study than ways to spend the available time more effectively. Although the lesson about time and study environment lesson happened during the first iteration, examples of students applying this learning became evident as the sessions moved to a close. Several students demonstrated using strategies during the self-study session, such as HM who re-evaluated when to do his homework so he did not have to do it after dinner, and BJ who specifically used study breaks with exercise, while he studied for an assessment, reporting that it made him less stressed.

The study environment session offered an option for students either to answer a series of questions about their study environment or to draw that environment. While the

drawing took slightly longer, and not all students finished, engaging in the creative artistic task might have allowed students to see the scenario differently (Hardiman, 2012). The remainder of the students analyzed current aspects of their study environments and whether those worked. In the reflections for the lesson, most indicated their study environment was effective, except one who had a bumpy table.

Related to the concept of planning study time was the influence of a long-term project on a student's study schedule. At JHMS, homework assignments were often to continue working toward completion of a long-term project. Thus, the ability to plan and keep up with assignments that lasted several days was important. For many of the students, the idea of planning the project as if it were due the day before was a positive new idea. Students quickly understood, as EB explained, "If you do it all in one night then you will forget some things." When asked how they would apply their new information about long-term planning, SW explained that he would "set a personal due date instead of the one the teacher assigned."

Metacognitive self-regulation (RQ1). An essential aspect of the cycle of self-regulation, as described by Zimmerman (2009), was the role of metacognitive monitoring as a component of the performance phase. This key form of self-observation included systematic forms of self-observation and self-recording, which were the focus of the MSLQ Metacognitive Self-Regulation scale. Analysis of this subtest using a paired samples *t*-test indicated a statistically significant difference from pretest ($\mu = 59.97$, $sd = 11.27$) to posttest ($\mu=52.60$, $sd=9.23$), including treatment and control groups ($n = 25$; $t = 4.36$, $d = 24$, $p = .00$). Statistically significant differences were also seen within the treatment group ($n = 13$), from pretest ($\mu = 60.00$, $sd = 11.50$) to posttest ($\mu = 53.38$, $sd =$

7.82), with similar results ($t = 2.49$, $d = 12$, $p = .03$; Table 14). Thus, findings indicated students in treatment and control groups both demonstrated a change in self-reported ability to engage in metacognitive self-regulation.

Considering maturation factors, as well as core classroom instruction, might inform self-reported differences in metacognitive self-regulation. When assessed on the pretest, students reported their understandings of metacognitive self-regulation and their abilities to engage in these processes. If explicit instruction and maturation occurred, then self-reported abilities on the posttest might reflect a more accurate indication of student abilities. Therefore, the self-reported indications of their abilities to engage in the processes of metacognitive self-regulation might have decreased as their understandings of these processes increased.

Table 14

Metacognitive Self-Regulation Subtest: Paired Sample t-*Test Results*

		Pretest		Posttest		t-test Results		
	n	*μ*	*sd*	*μ*	*sd*	*t*	*df*	*p*
All Participants	25	59.97	11.27	52.60	9.23	4.36	24	.00
All Male	16	58.94	10.27	52.13	7.90	3.26	15	.01
All Female	9	61.78	13.33	53.44	11.73	2.78	8	.02
Control Group	12	59.92	11.52	51.75	10.86	3.84	11	.00
Treatment Group	13	60.00	11.50	53.38	7.82	2.49	12	.03

Students in the treatment group could provide explicit examples of how they engaged in metacognitive self-regulation, both through their structured diary responses and in their classwork. Metacognitive self-regulation included the planning, monitoring, and regulating components of self-regulatory activities, as part of the awareness, knowledge, and control of cognition (Pintrich et al., 1991). While the MSLQ subtest did

not assess the knowledge aspect, this component was visible qualitatively and was a component of Zimmerman's (2009) cycle.

Much of the work of metacognitive self-regulation occurred within the learner in the classroom or study environment, and thus was not readily observable (Zimmerman, 2009). However, student reports on their own strategy used could indicate some of these thought processes. For example, during Session 14, students were asked to consider aspects of the environment in which they completed their work, and after identifying specific characteristics, the effectiveness of each. Students showed some ability to make these connections, including BJ who sometimes played music because it "helps me study." Determining when music was helpful and when it was not indicated some level of metacognitive monitoring. Similarly, JB monitored where to sit when working, as her work at her table or desk was better than on the bed or floor. Both EB and SW indicated the thought that went into determining where there were fewer distractions in their homes on any given day. Thus, students could assess the situation on each day and make conscious decisions to help them work more effectively.

A component of the performance phase of the cycle is attention focusing that, according to Zimmerman (2009), included ways to improve concentration and screen out other events. One of the options for the Session 15 self-reflection was for students to review a list of productive and nonproductive distractions to track their use during the week. Students were asked to log how they felt before and after the distraction. DM selected this option and explained that before he walked the dog, he felt stressed, but after, he was relaxed and ready. Students seemed initially surprised that one would talk about conversations with others, exercise, have phone time, or listen to music as helping

them focus their attention. However, several tried it successfully as they moved through the sessions.

Correlations. An investigation of the relationships among the Cognitive scale (Elaboration, Rehearsal, and Organization), Time and Study Environment, and Metacognitive Self-Regulation scales indicated a strong or very strong correlation for both the control and treatment group. As indicated in Table 15, correlation coefficients using Cognitive and Time/Study Environment subtests revealed a strong positive correlation ($r = .69$, $p < .01$) for the treatment group and a very strong positive correlation ($r = .87$, $p < .01$) for the control group. An analysis of the Cognitive scale and the Metacognitive Self-Regulation scale indicated a strong positive correlation ($r = .78$, $p < .01$) for the treatment group and a very strong positive correlation ($r = .91$, $p < .01$) for the control group. Analysis of student responses for Time/Study Environment and Metacognitive Self-Regulation also indicated a strong positive correlation ($r = .75$, $p < .01$) for the treatment and a very strong positive correlation ($r = .88$, $p < .01$) for the control. Correlation coefficient results indicated these skills were not isolated, and a focus and improvement of one set of skills might be related to improvements in another.

Table 15

Correlation Analysis of MSLQ Subtest Posttest Results by Condition

	Treatment ($n = 13$)		Control ($n = 12$)	
Subtests	*r*	*p*	*r*	*p*
Cognitive Time/Study Environment	.69a	<.01	.87a	<.01
Cognitive Metacognitive Self-Regulation	.78a	<.01	.91a	<.01
Time/Study Environment Metacognitive Self-Regulation	.75a	<.01	.88a	<.01

Note. a = Correlation is significant at the 0.01 level (2-tailed).

Avoidance behaviors (RQ2). Students who engaged in avoidance behaviors did so in a multitude of ways that were not necessarily visible to an observer or evident through self-reporting. Therefore, qualitative examples of avoidance and self-handicapping behaviors were not prevalent in this study. However, evidence from treatment group student reflections indicated examples of past avoidance behaviors. Additionally, a review of control group reflections compared to those of their treatment group peers indicated some differences in avoidance behaviors.

Analysis of disciplinary referral data indicated a reduction compared to previous years in behavioral referrals, indicating self-handicapping or avoidance behaviors. As indicated in Table 16, students in the treatment group did not earn any behavioral referrals in the categories designated as avoidance behaviors, including classroom disruption, defiance, disrespect, and non-compliance (Todd et al., 2010). This is a reduction of 100% from the ten referrals earned in these categories the previous year. A greater reduction in disciplinary referrals related to avoidance behaviors occurred for the treatment group than for the control group (Table 14).

Table 16

Percentages of Disciplinary Referrals Earned by Condition: Historical and Current

	Control Percentage Earned		Treatment Percentage Earned	
Year and Grade	General Categories	Avoidance Categories	General Categories	Avoidance Categories
2015-16 (fifth)	17%	25%	23%	17%
2016-17 (sixth)	52%	56%	68%	83%
2017-18 (seventh)	31%	19%	9%	0%
Total Referrals	29	16	22	12

Control group case study. Students in the control group referred to avoidance and self-handicapping behaviors throughout the 20 weeks of reflections. Several of them (*n* = 4) selected procrastinator as a description for themselves as a learner on Exit Ticket 1, including one male who indicated that he waited until the last minute to do things and did not like school (EK). Following that same male for several weeks, this student provided other examples of self-handicapping behavior throughout his responses, as indicated in Table 17.

Table 17

Example Control Group Responses Indicating Avoidance Behaviors

Week	Exit ticket question	Control response (EK)
4	How did you plan for and organize your homework this week and was it successful?	I did good it was pretty successful.
7	What was one way you took notes this week in class and was it helpful?	I write them in my notebook.
8	What is the academic goal you are working toward and what steps have you taken toward it this week?	To keep paying attention.
9	What was one way you took notes this week in class and was it helpful?	I put it on a separate piece of paper, it worked pretty well.
11	Did you use any graphic organizers or visuals this week to help you learn?	No
	Was it assigned or by choice?	Choice
	Was it helpful?	I don't do it.
12	On a scale of 1 to 10 how effective is your study environment? Explain your response.	6: I don't study often but it is pretty effective when I do.
14	How much time did you spend on homework this week and was it effective?	One hour it was effective
15	What study strategy or strategies did you use this week?	(Left blank)
	Rate how effective it was on a scale of 1 to 10. Briefly explain your rating.	4: I don't really study.
16	What is your response when you do well on a test? What is your response when you do not do well on the test?	When I do well I'm like too easy. When I don't do well I'm like I got to do better next time.
17	What is the best way for you to study for a test and why?	I don't study much but when I do I go over what we learned
18	What study strategy or strategies did you use this week?	I studied
	Rate how effective it was on a scale of 1 to 10. Briefly explain your rating.	6: I did pretty good in classes this week.

One must note several responses that were less than complete. Other control group students responded to all aspects of the exit ticket questions and provided details to support their answers. This finding was also in contrast to the responses for sample student EK.

Several details of this example were relevant. Note the response to the Week 16 questions, in which doing well on a test meant that the test was too easy, and a lack of specificity about what might lead to doing better next time. This response indicated a lack of understanding of his own role in achieving a grade or doing well on a test. Despite the student's indications that he was doing well in his classes and was having success, a review of his grades indicated that this was not the case. Grades from Quarter 1 included a C- in math, and by Quarter 2, all grades were in the C and D range, including a D- in science and a D+ in math. Teachers commented on the Quarter 2 report card that his effort was inconsistent, disorganization affected performance, he was missing assignments, and his behavior was unacceptable at times. This student did not have any behavioral referrals but did not engage in a pattern of earning referrals in the past.

Treatment group avoidance examples. In contrast to the above example, students in the treatment group demonstrated fewer examples of disruptive or avoidance behaviors, and none as a continuous pattern. Some similarities existed at times in a lack of specificity in responses of actions or behaviors. This finding was most evident during early sessions, and none in longitudinal patterns with one student for several sessions.

Two students showed some examples of self-handicapping on isolated questions. Tina first responded that her SMART goal in Session 3 was to get her grades up, and her action steps were to "work hard during class." However, despite sometimes nonspecific

answers, this student also demonstrated using specific strategies in class, and she could provide specific examples of why those were successful. In contrast to Edgar's response (Table 15) about using visuals, after Session 11, Tina explained she had used a visual by choice, and she had used a concept map to take notes.

The second student who engaged in avoidance behaviors did not do so until near the completion of the intervention sessions. His responses to reflection questions and in class participation showed differences before and after the Session 15 independent study. Before this time, this student demonstrated an ability to explain ways he used specific strategies in class and a goal regarding his level of focus in class, including the reasonable action step of sitting in seats away from his friends. In fact, a student engaged in avoidance behaviors might sit next to friends as an avoidance strategy. However, after Session 15, his responses changed, including responses, such as "I can't" to a question about explaining the level of effectiveness of action steps toward his goal, and an indication on his Session 16 entrance ticket that his academic goal was "Nothing really." His Session 19 reflection stated, "I don't know" to the strategies used to study during the last week with an effective level of 1, because "I didn't study for anything." Based on knowledge of this learner's profile, it might be that the inconsistency of school due to weather and increased transitions and unpredictability influenced him during this time. However, one must note that he received the opportunity to remove himself from the intervention, and he chose to continue to attend and participate.

Putting it Together

Progression through the cycle for each iteration resulted in recognizing specific and concrete strategies in which students engaged. However, the goal was to assess

students' understandings of the cycle as a whole, and their understandings of ways the parts fit together to become part of who they were as learners. Qualitative analysis yielded insight into just how students could mesh these components.

Self-reflection. Related to the ability to self-observe and self-monitor was the self-judgment component of the final phase of the cycle, the self-reflection phase. Students used the outcomes that they monitored in the previous phase to evaluate effectiveness, make causal attributions about the results of their learning efforts, and move forward through the other phases of the cycle.

Developing the ability to engage in causal attributions and point to reasons why a strategy was or was not successful helped students foster motivation (Dignath et al., 2008). Students were taught explicitly about attribution during Session 11, prior to the first time that they would officially monitor their goal progress. The concept was defined simply, as beliefs about the causes of actions, and students were given a framework to think about recent results in a concrete manner. Students named a specific result, whether it was the result they wanted, the steps that led to that result, and what they might do differently, thus demonstrating the ability to engage in the process of attribution. Three students indicated they would have liked different results; one wanted a slightly higher score; one had done poorly on a math quiz; and one forgot to hand in an assignment. Most students could identify something they would do differently.

The steps that students would take differently varied regarding specificity. Some responses included vague steps, such as "study more," but others pointed to specific actions, such as SC's "write neater and type notes," JA who needed to "ask more

questions," DM who would "start studying earlier" and "study more than the test review," and SW who wanted to be "more focused on stuff not in notes as well as notes."

To begin Session 16, students engaged once more in a thought process allowing them to make attributions. The entrance ticket for that session included identification of their current SMART goal, two action steps, and the level of effectiveness of those action steps on a scale of *1 to 10*. Several students (n = 4) indicated their steps were highly effective (scoring an *8 or above*). Of these, BJ indicated, "Taking breaks and good notes have helped me achieve my goal, taking breaks helps me to relax and do my work." SW indicated using flashcards and studying in a quiet place in his room helped his studying to be more effective.

Several students indicated less than a Level 5 of effectiveness for at least one of their actions steps. LC's action step included asking for help, which was not effective because she did not know what help to ask about. Based on the follow-up discussion, this understanding of the need for specificity, even when asking for help, was a new realization for her, and she returned to this understanding several times in future conversations.

Further reflection allowed students to make a connection between a strategy and the value of that strategy. The Session 14 structured diary prompt asked students to think about a recent positive test result, specifically about where or how they studied that led to that result. Students talked about specific examples of reduced distractions, but other than one reference to nonspecific effective strategy use, they did not describe specific study strategies. After Session 16, students were asked the same questions about a result they were not pleased with, and some talked about concrete mistakes. For example, CO

"forgot to turn it in," and HM "didn't have the right things to study with." GO understood that she had not explained enough on the assignment, but most responses were less specific and more about studying harder or more. Both of these reflections occurred before the specific lessons focused on test preparation.

What it means to be a learner. Ways students viewed or described themselves as a learner provided insight into how they thought about the learning processes in which they were engaged, as well as their level of self-efficacy. Students in both groups were asked several times, the treatment group three times and the control group twice, to describe, "Who you are as a learner." Responses provided evidence that students in both groups initially related their identities as learners to the speed of task completion, as well as the ease at which they could accomplish a task. The treatment group was asked to simply describe themselves as a learner after Session 1, and they used descriptions, such as distracted, hard worker, open, self-reliable, smart, good listener, and "I do my work." When asked after Session 20, these students used some of the same words but with added details. For example, DM's description of a "hardworking student that strives for perfection" became a "hard worker that stays on task and uses time effectively." This inclusion of specific strategies and action steps was not seen in the Week 20 control group exit tickets, which continued to include descriptors, such as "good learner," "learn fast," "active learner," "I have good study habits," and "I get my work done faster."

Further, students were asked ways this description changed since the start of seventh grade, and many used words that demonstrated an increase of some sort. Three students indicated there had not been a change. The remainder of the descriptions at the completion of the intervention included specifics, such as discussions about increased

planning, CO's "I have learned ALOT [sic] more about how to study and how to handle school," and LM, who learned "how my teachers want me to learn and present myself." There were indications of increased participation in class and being a stronger student because of increased preparation.

Differences by gender (RQ3). Research Question 3 specifically focused on differences in the influence of the intervention on males, as opposed to females. There were several indications in both quantitative and qualitative analysis that the males in the treatment group responded differently compared to the females. The male students in the treatment group demonstrated several areas of growth as different from their female counterparts. Mastery goal orientation was an area of particular difference, as indicated by both quantitative and qualitative indicators. The boys demonstrated an ability to determine specific areas of focus for mastery goals, methods for measuring growth that were not performance based, and an ability to think carefully about action steps. This finding was evident in their weekly reflections, classwork, and discussions.

Throughout the intervention, students were asked several times to reflect in the structured diary about the steps they could take toward their goal and the ways they could monitor their progress. Session 12 provided an opportunity for students to work with a peer to review their current goals and potential action steps. The reflection from this session asked students to consider how they might track progress toward their goal based on this conversation. While 75% of the females spoke to tracking progress using grades, males indicated specific methods of measurement including reflecting back on a weekly calendar (DM), checking to make sure all homework is written down (HM), and monitoring the length of time for studying using a timer (SW). The Session 19 reflections

regarding a current SMART goal indicated similar distinctions between male and female responses. Female goals included "get a good grade on my math test" (AN), and "I want to be more prepared for quizzes and tests" (OJ), while male goals were more specific. DM responded that his current goal was to "become a better editor." BJ wanted to "learn to take notes quicker." CO wanted to "use a calendar for DAILY tasks." One female did not indicate a grade as a goal but was less specific compared to her male counterparts, indicating that she wanted to "understand all my work" (GO). These trends indicated that male students in the treatment group improved their ability to determine mastery goals.

As stated previously, paired sample *t*-tests revealed few areas of statistically significant differences when comparing pre and posttest results for either condition, both as a whole and separated by gender (Tables 10 and 11). However, as related to RQ3, a difference between male and female students in the treatment group was seen in the analysis of the Mastery Goal Orientation subtest of the PALS survey (see Table 18). Independent samples *t*-test results demonstrated a significant difference on the Mastery Goal Orientation postassessment for treatment males, as compared to treatment females ($t = -2.33$, $df = 10.59$, $p = .04$). This statistically significant difference was not evident for the pretest based on the independent samples *t*-test for the treatment group ($n = 13$) pretest ($t = .67$, $df = 11$, $p = .52$). This finding supported the qualitative analysis of male growth in mastery goal orientation.

Table 18

PALS Independent Samples Tests for Treatment by Gender

PALS Subtest	Male (n = 9)		Female (n = 4)		Independent Samples t-test		
Pretest	*M*	*SD*	*M*	*sd*	*t*	*df*	*p*
Mastery	23.22	2.49	22.25	2.22	.67	11	.52
Efficacy	20.44	3.84	18.50	4.73	.79	11	.45
Self-Handicapping	10.89	3.92	11.50	5.57	-.23	11	.82
Disruptive Behavior	9.00	3.00	8.75	5.19	.11	11	.91
Posttest							
Mastery	21.33	3.00	24.25	1.50	-2.33	10.59	.04
Efficacy	20.78	2.86	17.50	4.20	1.67	11	.13
Self-Handicapping	10.22	4.24	10.75	4.27	-.21	11	.84
Disruptive Behavior	10.67	4.74	8.75	3.30	.73	11	.48

Correlation analysis also showed strong and very strong correlations between subtests on the MSLQ for males in the treatment group (n = 9) but not for females (n = 4; Table 19). Very strong correlations were indicated between the Cognitive and Time/Study Environment subtests (r = .83, p < .01), and the Cognitive and Metacognitive Self-Regulation subtests (r = .87, p < .01). Strong positive correlations were indicated between the Time/Study Environment and Metacognitive Self-Regulation subtests (r = .75, p < .05). An analysis of the female students (n = 4) in the treatment group did not indicate significant positive correlations among the subtests.

Table 19

Correlation Analysis of MSLQ Subtest Posttest Results by Gender

	Male (n = 9)		Female (n = 4)	
	r	*p*	*r*	*p*
Cognitive Time/Study Environment	.83a	<.01	.27	.73
Metacognitive Self-Regulation Time/Study Environment	.75b	<.05	.72	.28
Cognitive Metacognitive Self-Regulation	.87a	<.01	.64	.36

Note. a = Correlation is significant at the 0.01 level (2-tailed). b = Correlation is significant at the 0.05 level (2-tailed).

Discussion

According to achievement goal theory, levels of student motivation are impacted by the achievement goal they hold (Kaplan et al., 2002), which distinguished the ways they engaged in learning tasks. A mastery goal orientation focused a student on learning and mastering challenges (Bong, 2009) and was a strong predictor of several aspects of school success, including using more in-depth learning strategies (Theis & Fischer, 2017). Additionally, researchers have positively correlated mastery goal orientations with self-efficacy (Bong, 2009). In this study, students, especially boys in the treatment group, demonstrated an increased level of mastery goal orientation, as well as an increased ability to determine learning strategies for use as they worked in class and independently. This finding was is in agreement with past research regarding connections between goal orientation and strategy use, although strong evidence of increased self-efficacy was not gathered.

Students who self-regulated could identify what success on a task looked like, access a repertoire of strategies, and determine what would work or not work to

accomplish the task (Hattie & Donoghue, 2016). Students who did not self-regulate and held performance goals might consider ways to avoid working toward that task. Throughout the intervention, students in the treatment group increasingly reported ways they used and thought about goals and learning strategies. One student reported in the reflection on the final day: "The lessons made me think about my learning and how I do it. It made me learn to be more productive" (Anonymous, 2017).

Because the intervention focused on a cycle of self-regulated learning, it was difficult to determine the order in which skills and constructs built on and influenced each other. The intervention was designed to provide instruction first regarding self-efficacy and goal orientation, and then to move to teach specific strategies before returning to the ideas of goal setting and efficacy. Essential to the cyclical nature was a focus on continuous growth and shifts in learning over time based on reflection about the processes toward that goal (Zimmerman, 2009). Thus, although there was evidence of correlations among skills, causality was not established.

This study addressed a gap in the literature. Researchers have connected goal orientation and self-regulation to academic achievement (Bong, 2009; Wolters, 2004; Zuffiano et al., 2013), and have investigated goal orientation related to gender (Dekker et al., 2013; Theis & Fischer, 2017). Unique to this study was the connection with disciplinary referrals. Male students at JHMS, in addition to indicators of concern specific to academic achievement, earned greater numbers of referrals compared to their female counterparts (JHMS, 2018c). A focus on self-regulation as a way to decrease avoidance behaviors and the associated disciplinary referrals had not previously been studied. The results of this small study indicated that teaching students ways to engage

successfully in classroom tasks and to work toward mastery of content or skills might decrease behavioral concerns, especially for middle school boys.

Summary

A review of the areas in which students demonstrated the greatest growth indicates that growth occurred in areas focused on the application of specific strategies, with a concrete and visible change or product. For example, a student did not have a tangible way to monitor their self-efficacy but could see visible evidence of a new strategy for note taking. While engagement in a cycle of self-regulation might result in increases in self-efficacy (Zimmerman, 2009), this was a less immediate and less measurable outcome for students. Thus, while an outside observer might see changes evident in the way that a student spoke about their work or what they accomplished, a student might not reflect on this level of personal growth.

The order of lessons might have influenced student engagement in the work. The lessons were designed to introduce students to the overarching concepts and understandings of the cycle initially, and then to make concrete applications connected to those. However, students more readily engaged in learning about, understood, and implemented concrete strategies. The concrete strategies might have provide a foundation for students to understand more abstract ideas, such as self-efficacy or outcome expectations.

One might consider the impact of teaching students to engage explicitly in and recognize skills of self-regulation and reflection. The pre-assessment asked students to self-report on their abilities to reflect or control their study environments. Students with a low level of understanding of what that meant might overestimate their abilities to engage

in that task. Once that student learned explicitly about the skills of self-regulation, one might question whether he or she more accurately portrayed his or her ability to engage in those skills. There were examples in the qualitative data of students utilizing skills to a greater extent; however, quantitative self-reports indicated less frequent engagement in those skills less. Future studies might consider opportunities for observation of skill application to determine the effect of new learning on self-reported ratings of self-regulation.

Limitations

There were several limitations to this study, including sample size, the researcher's role in the school, self-reported data sources, and session length. The sample included 27 students enrolled in the seventh grade at JHMS. The students who consented to participate were divided into two groups, a control group (n = 13) and a treatment group (n = 12), with two students who did not complete the fidelity requirements of the intervention. Recruitment into the study was impacted by several factors, including the time of year in which it occurred. The beginning of the year in any school includes multiple mailings and contacts between the school and home, and it may be that the recruitment materials became part of this potentially overwhelming collection.

Importantly, the role of the researcher as principal at JHMS, as well as the sole implementer of the intervention, presented several limitations. First, the dual role necessitated restrictions to the recruiting methods to prevent any coercion, which might have influenced sample size. Second, the concerns of the problem of practice could be addressed through classroom or contextual means, such as a focus on classroom grading practices. However, engaging as researcher, rather than principal, required the design of

an instructional intervention focused on student needs. Potential conflicts of interest might have existed for an intervention designed to work directly with teachers who were formally supervised by the researcher. Thus, the intervention was designed to provide students with skills and thought processes important for them as students within any classroom or school context.

Sources of data for the study included self-reported and teacher reported information about student behavior. The data were gathered to inform the research questions and consisted of several sources, each of which was self-reported by the students engaged in the intervention. Both the PALS (Midgley et al., 2000) and MSLQ (Pintrich et al., 1991) relied on students' reports of their own behavior, thus limiting objectivity and potential accuracy. Furthermore, increased understanding of those constructs might influence the accuracy of student self-reports. Students might judge their abilities less accurately when they had less understanding of the construct. As their understanding increased, students might realize that they gig not understand or apply the processes, as well, thereby resulting in lower scores on self-rating assessments. Disciplinary referrals were also subject to human judgment. Although staff at JHMS followed guidelines, regarding behavioral expectations and categories on which calibration occurred, they handled concerns differently. Thus, indicators of behavioral incidents might also fall short of absolute objectivity.

Each session was designed to occur during a period of the day in which students would not miss any academics. This process provided a 30-minute period for each session during a school-wide intervention and extension period at the start of each day. However, because the sessions did not occur every day and students were spread across

various homerooms, it was difficult to capture the entire 30-minute period. While some sessions could fit within this time, several sessions ran short of time for instruction and application of skills. This issue resulted in the extension of lessons over several days and a reduction in the quantity of skills taught. Additional or more extended sessions might have allowed for greater application and one-to-one conferencing with students, thereby increasing the effectiveness of the intervention. The time length did not allow for teachable moments and sharing of strategies along with the set scheduled lesson.

Implications for Practice

At the completion of the intervention, students in the treatment group were asked to reflect on several components of the intervention. In this reflection, they not only pointed to specific skills and strategies gained, but also offered their opinions about the expansion of this work for the whole school. Several indicated they would like to continue learning, and all students in Grades 5 through 8 should have access to this information. Students suggested this could occur as part of their fine and practical arts rotation or in advisory groups. The instruction also had potential as an intensive intervention for students engaging in avoidance behaviors, as indicated by disciplinary referral numbers. This process could occur as an intensive intervention as part of the SRBI process. Implementation for both purposes requires one considering several implications for practice and engages multiple stakeholders, as indicated in Table 20.

Table 20

Implications for Practice Specific to Stakeholder Roles

Role	Implication	Action
Student	Instruction as component of core curriculum.	• Receive instruction in small groups, with advisors or as part of Fine and Practical Arts cycle. • Complete needs assessments regularly to inform instruction and address particular academic demands as they are occurring. • Make classroom connections and applications using skills gained during explicit instruction.
Teacher	Provide instruction for all students in cycle of self-regulation.	• Engage in professional development regarding goal orientation and cycle of self-regulation. • Provide opportunities for application and reinforcement of skills during core instruction, perhaps alternating explicit instruction and application. • Provide explicit instruction, individual support, and conferencing for students to support growth of self-regulation. • Engage in ongoing review and monitoring of grading practices to provide support for and alignment with mastery goal orientation.
Principal	Implement as component of core curriculum and targeted intervention	• Plan and implement ongoing professional development for teachers focused on goal orientation and cycle of self-regulation. • Schedule small groups of students with each teacher to facilitate modeling and conferencing regarding cycle of self-regulation. • Monitor disciplinary concerns and provide structure for intensive intervention based on cycle of self-regulation to reduce avoidance behaviors. • Support ongoing review of grading practices to support mastery goals.
Parent	Support students in mastery goal orientation and application of cycle of self-regulation.	• Engage in new learning regarding mastery goal orientation, self-regulation, and supporting student learning strategies. • Provide ongoing support for students at home regarding application of skills, including facilitating environmental factors such as time and space.

Implementing lessons regarding self-regulation as a core component of the curriculum might benefit from a needs assessment prior to beginning instruction and regularly as the intervention continues. In this study, several of the lessons were designed initially with a focus on assisting students in dealing with homework and application of the components of the cycle of self-regulation to planning for and completion of homework. However, when initial questions were asked about homework, students indicated they did not have much homework, and it was not difficult for them to complete. Therefore, for most of the intervention time, homework was not something that students needed assistance planning ways to complete. However, toward the end of the semester, as multiple projects occurred, students did need assistance balancing time and planning. A lesson focused on that need at that time would be more effective than as a disconnected lesson at another time. Ongoing needs assessment would allow the instructor to meet the specific needs of each group of students at each particular point in time, thus increasing relevance and the opportunities for use and application of skills.

Students needed multiple opportunities to make explicit connections between the strategies they utilized and the results to attribute success or failure (Pape et al., 2012). In this study, opportunities were limited by the 20-week intervention design, sample size, and 30-minute class periods. Future design might include smaller groups to allow conferencing and opportunities for individual reflection and feedback for each student. There were examples throughout the sessions of the positive impact of even brief personalized discussions about needs. The strategies that students needed and utilized varied based on their own situations, and individual conferencing might assist in increasing their levels of reflection.

Further implementation of instruction focused on self-regulation required additional learning for teachers who would be involved in providing instruction. Thus, there were several implications for professional development based on the study. If students learned about, engaged in, and applied the strategies related to mastery goal orientation and self-regulation, then teachers needed also to have an understanding of each. One should not think that teachers would know and understand the difference between mastery and performance goals, strategies to build metacognitive monitoring, or a variety of strategies for note-taking and time management. That knowledge was a necessary precursor to effective discussion with students about how to implement strategies. Additionally, teachers must understand how their instruction, assessment, and assignments either supported or detracted from students' abilities to engage in self-regulated learning. Explicit professional development focused on each component of the cycle, including sample lesson ideas, was essential. Teachers could then be fully prepared to instruct and conference with small assigned groups of students.

Although the sample size was small, the size of the group highlighted the importance of considering group size when designing future work focused on goal setting and self-regulation. There were several lessons in which a greater ability for the teacher to conference with students about their goals and action steps, engaging them in and modeling reflective practices, would have been productive. Modeling and conferencing with students could help them engage in attribution and metacognitive monitoring, as teachers modeled the questions and behaviors of self-observation and self-judgment that were essential to the cycle of self-regulation.

Similarly, the design of a curriculum focused on self-regulation might benefit from alternating explicit instruction with application and reflection. The self-study example in Session 15 lent some context for future design of this series of lessons. Students seemed to appreciate the opportunity to make choices, apply skills, and log the results during that week off from direct instruction. After 14 sessions, students also seemed overwhelmed by the new learning. Additionally, some of the skills and strategies might have required practice and application over a length of time before students could fully master these as part of their repertoire of strategies. In practice, one might consider a cyclical design over a more extended period, in which students could participate in several explicit lessons, followed by a period in which they practiced and applied, and then returned for some explicit lessons.

Student reflections indicated evidence of strategies used primarily at home, in personal study environments, and less evidence was provided of strategy application within the classroom. As seventh graders, there seemed an understanding that the teacher determined which strategies would be used within the classroom. For example, students indicated they took notes in certain ways in certain classrooms, as based on teacher directions, or used a specific graphic organizer assigned by the teacher. Increasing teacher understanding and engaging teachers in instruction focused on specific note-taking skills, for example, may increase opportunities for using those strategies in the classroom. As students moved from middle to high school, there were increased opportunities and teacher expectations for personal strategy selection. Middle school teachers understood and supported students in their choices of strategies. As teachers

understood and instructed on specific strategies, their comfort levels with student choices in using these strategies could increase.

A pattern emerged in reviewing the qualitative data regarding the ability of students to measure academic growth concerning learning, rather than utilizing a grade assigned by a teacher. Students demonstrated an ability to assess their growth using specific skills, such as recording their homework, organizational, or time management skills using concrete growth measures. However, student ability to measure their growth specific to skills or content might have been limited by the ways in which that content was presented and measured by the teachers. While teachers at JHMS were engaged in new learning regarding mastery learning and grading processes, grades continued as the primary source for measurement of student learning, causing a potential conflict in ways students were asked to measure progress.

Much of the application of skills, if successful, might occur at home. Therefore, considering a parent and home component might be important for future work. If parents could understand the various strategies that students would learn about, the ways in which they were being taught to set goals and determine which strategies worked best for them, and what ways the home environment could support them, it might increase effectiveness. If a student was being taught to design a goal based on mastery of skills or content, and understanding there might be less effective strategies tried along the way, but the parent was focused only on a grade, then the intervention could lose effectiveness. A discussion of some sort could reconcile this issue for the student to be successful.

Implications for Future Research

While the intervention in this study was specific to concerns in a specific context, there were implications for further research. Future researchers could focus on when and where students learn to be self-regulated learners, their abilities to maintain new skills beyond an explicit intervention period, the design of instruction, and the instrumentation used to assess these skills. Essential to this was the understanding that self-regulated learning was important for all learners; as such, it had the potential to assist in addressing concerns about struggling learners. Table 21 provides a summary of key findings and the questions that one may raise for future research studies.

Table 21

Summary of Implications for Research

Finding	Questions Raised	Next Research Step
Students demonstrated lack of ability to design and implement mastery goals.	When and how are students taught to design goals? What intervention could be impactful at the elementary grades?	Longitudinal study regarding instruction of mastery goal orientation through elementary school to determine when and where explicit instruction occurs regarding goal orientation, as well as where it might be most effective. Implementation of similar intervention study at elementary level.
SMART goal format led to creation of performance based goals.	What framework would assist in the creation of goals that are mastery oriented, as well as specific, measurable, achievable, relevant, and timely?	Study focused on creation, design, and application of mastery specific framework.
Indication of short term gains, including decreased avoidance and behaviors and application of learning strategies.	To what extent can students maintain growth over time?	Longitudinal study following student growth and maintenance over time, especially as students transitioned to high school.
Disciplinary referrals earned for engagement in avoidance behavior decrease in correlation with instruction in cycle of self-regulation	What would be the impact of instruction at an earlier age? Are behavioral concerns at elementary levels also potentially related to avoidance behaviors and self-regulatory cycle?	Longitudinal study focused on avoidance behaviors as manifested in discipline at earlier grades. Implementation of similar intervention study at elementary level.
Students expressed high stress levels about their academic performance.	How can self-regulation serve as protection from or method for alleviating high levels of academic stress?	Study with potential neuroscience focus to include impact of stress on student learning as related to application of learning strategies and self-regulatory cycle.

A longitudinal study could provide additional sources of information regarding several aspects of the study. It is not clear how or when students learn about self-regulation, how explicit that instruction might be, and whether some students may have greater access to these skills compared to others. A longitudinal study, with a larger sample size, could provide a study of patterns related to which students possess greater abilities to engage in the skills of self-regulation, and assisting in identifying the manner in which these skills were gained. Greater information was also needed about ways to build these skills, as students moved through elementary school. This process might include an understanding of the way in which self-regulation was taught at the earliest grade levels, which methods have the most impact, and whether girls learned this differently compared to boys.

Longitudinal studies could also increase understanding of any gender differences in self-regulatory skills, as well as connections to behaviors beginning in the earliest grades. For example, researchers have focused on gender differences in kindergarten, which resulted in larger numbers of males at the low performing levels (Matthews et al., 2009). Are there early indicators that might help these lowest performers? What implications are there for students who perform at the lowest levels of self-regulation as early as kindergarten as they move into secondary education with more demanding academic tasks, and increased organizational needs? Does intervention occur at the earlier grades, and what would effective intervention look like? Determining and addressing concerns in elementary grades, and ensuring that students understand and apply a cycle of self-regulated learning at a fundamental level as they move through school could lessen concerns at the middle school level.

Further, a longitudinal investigation could assist in a greater understanding of the most conducive instructional environment for students to learn and apply the skills of self-regulation. There are examples in the research literature of interventions that address self-regulation in isolation (Martin, 2005) as well as those who focus on teaching these skills within the classroom (Pape et al., 2012). Further investigation is needed into the advantages and disadvantages related to both, as well as the effects of combining the two methods. Consideration of the impact of opportunities for explicit instruction followed by application and reflection might provide for the design of effective programs. If students can engage in the cycle of self-regulation systematically and with repeated application over the course of a grade level or several grade levels, would there be greater benefits? Instruction providing opportunities for application and ownership, over time, is important especially at the middle school level. Students in middle school are gaining the skills they need as learners to manage increased workloads associated with high school and beyond effectively.

The researcher identified gains made through a short-term intervention, as well as short-term reductions in disruptive behavior. Questions arose about maintenance of the growth over time, as well as what influence a more extended intervention might provide. A longitudinal study could provide additional information about the ability of students to maintain skills of self-regulation long term.

Students in the treatment group indicated high levels of stress about their work and a pressure to achieve at high levels. These performance concerns included school grades as well as standardized assessments. The growth of knowledge in the field of neuroscience related to the influence of stress on student learning could inform

understanding of ways in which self-regulation might help to alleviate the influence of stress. Additionally, future research might consider whether student stress levels connect to students' ability to engage in self-regulated learning.

A focus on the instrumentation used to measure goal orientations leads to a discussion of the SMART goal format used (Cash, 2016) to structure goal writing during this study. However, when used in conjunction with a mastery and performance goal structure, there seemed to be some confusion among the students. A student can have a goal that is specific, measurable, achievable, relevant, and timely and still performance based. The design and implementation of goal frameworks over time is one potential area for additional research. Future work might lead to the design of a framework that students can internalize and take ownership of to a greater extent, with less scaffolding, and that addresses the need for a mastery focus.

Conclusions

This study addressed a gap in the literature by connecting the way that students felt about their goals and abilities in the classroom to their behaviors. For a middle school male with low self-efficacy and a lack of knowledge of the skills he needed to be successful in class, intervening about the behavior once the behavior happened was too late. Instead, as a system, school leaders must understand the reasons for avoidance behaviors to provide students with the tools and strategies they need to engage in the learning fully.

Understanding and addressing the behaviors of male middle school students requires an understanding of students as learners, as well as the skills and beliefs they bring to the classroom. This researcher provided one consideration of ways to help

students to remain in and benefit from classroom instruction, providing them with the self-regulated learning strategies that may help them to do so successfully. Not every disruptive student may engage in off-task behaviors for the same reason. Thus, an understanding of multiple pathways to prevent disruption was essential. This study added to an understanding of the variety of reasons and provided one potential instructional strategy to assist in reducing disruptive behaviors. Without learning how to self-regulate, many of these boys have transitioned to high school where they would further struggle, engage in further discipline, and miss essential learning and opportunity.

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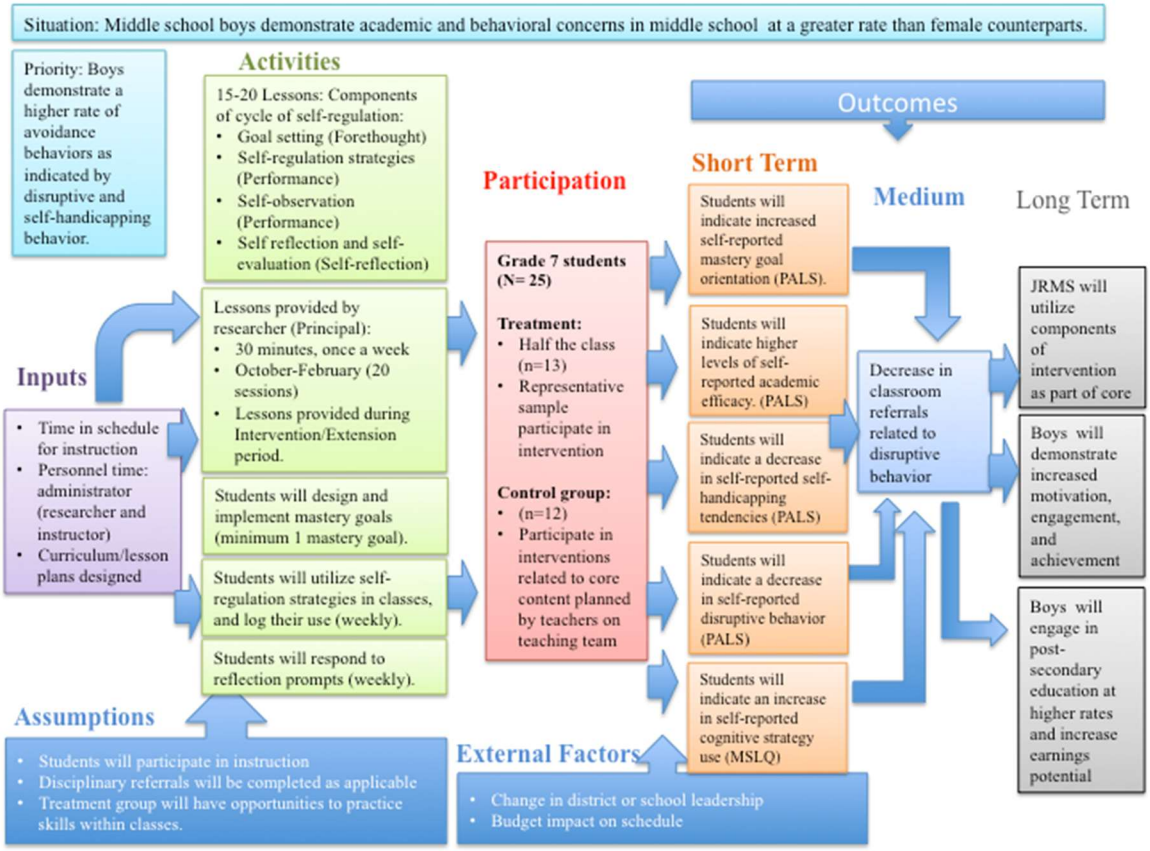
Appendix A: Logic Model



Appendix B: Lesson Plan and Structured Diary Details

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
1 10/5	Introduction	Introduction	Introduce circle and routine **Circle:** One word to describe how you feel. One word to describe yourself as a student. Introduce Google Classroom. Introduce cycle, visual posted and electronic. Introduce homework log.	Treatment: Describe who you are as a student. You may choose to do this as a visual of illustration on a separate piece of paper. What is a current goal that you are working toward? Control: Which of the following describe you as a student? (organized, procrastinator, diligent, dedicated, not interested, goal oriented, successful, unsuccessful) Please briefly explain your responses.
2 10/12	Forethought	Goal setting	**Circle:** Share a goal that you have in any area of your life. Introduce goal framework (SMART; graphic organizer) Sample goals to use as a model (examples and non-examples) Video regarding goal design Brainstorm potential goals: Chalk Talk protocol (Ritchhart et al., 2011)	**Treatment:** Please write the draft of a SMART goal you might work toward. (1 to 10) Scale: How difficult was your homework last night? Yes/No: Did you feel like you were capable of completing your homework? Explain. **Control:** Write a current goal that you have.

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
3 10/19	Forethought	Goal setting (continued)	**Circle:** Favorite breakfast food What is a current goal that you have? Peer review of SMART goals Defined self-efficacy (sports metaphor): used visual anchor chart.	**Treatment:** What is your SMART goal? What action step will you take toward this goal this week? Think about a recent grade you received. Was it good or bad? Was it a reflection of your ability? Explain your answer. **Control:** Think about a recent grade you received. Was it good or bad? Why or why not?
4 10/24	Forethought	Define and apply self-efficacy	**Circle:** What is something you think you have high self-efficacy for? Application of definition and discussion of potential scenario (Sarah's Diary; Brier, 2010)	**Treatment:** What steps you have you taken toward your goal this week? What is an area where you have a high level of self-efficacy? What is an area where you have a low sense of self-efficacy? What can you do to increase your self-efficacy in this area? **Control:** What is the academic goal you are working toward and what steps have you taken toward it this week?
5 10/31	Performance	Time planning and	**Circle:** When you are working most efficiently,	**Treatment:** How do you plan for and organize your

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
		management	what is present? Anchor chart: Prioritizing and time management Time Wasters and Time Savers Application of time scheduling: Time use activity: Identify items on which time is spent, categorize as time wastes and time users, and prioritize (Hansen, 2013).	homework? What order do you do your homework in and why? What steps have you taken toward your goal this week? **Control:** How did you plan for and organize your homework this week and was it successful?
6 11/9	Performance	Time planning and management	**Circle:** What is something that you like about the approaching cold weather? When do you do your homework? • Time Management Chart (Schumm, 2001) • What is one way that you waste time and one way you use it? • Model use of daily and weekly calendar templates • Daily homework planner (Dawson & Guare, 2010) • Assessing using routines and to do lists (Brier,2010)	**Treatment:** Which homework/daily planner seems the most helpful to you and why? How does that planner differ from what you normally use? **Control:** What is the academic goal you are working toward and what steps have you taken toward it this week?

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
7 11/14	Performance	Note taking Strategy and practice 1	**Circle:** What goes through your mind when you the teacher says you need to take notes? On a scale of 1 to 10, how good are you at taking notes? How useful are your notes? Stations with 5 graphic organizers: Collaborative brainstorm: Which can you use for which purposes. • Flow chart • Spider map • Four column chart • TickTackToe • Venn Diagram (Frender, 2004)	**Treatment:** Describe how you have taken notes in class in the past. Was this method effective? How do you know? Which of the graphic organizers we used today seems the most useful to you and why? **Control:** What was one way you took notes this week in class and was it helpful?
8 11/21	Performance	Note taking Strategy and practice 2	**Circle:** How is progress toward your goal going? Continuation of graphic organizer brainstorm (see Session 7)	**Treatment:** What goal are you currently working toward? What successful steps have you taken toward this goal? What note taking tip or idea have you tried? Did it help you? How? What note taking tip or idea will you try? How will you know if it is helpful?

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
				Control: What is the academic goal you are working toward and what steps have you taken toward it this week?
9 12/1	Performance	Note taking Strategy and practice 3 (Concept Mapping)	No circle: time needed for concept mapping application) Mind Maps/Concept Maps (Dawson and Guare, 2010) Practice with modeling of a short science reading Students read from own text and create concept map.	**Treatment:** Name one way you have taken notes in the past few weeks. Was it effective? How do you know? Reflect on the first quarter and who you are as a learner. How have you grown? What has gone well? What are you struggling with? **Control:** What was one way you took notes this week in class and was it helpful?
10 12/8	Performance	Note taking	No circle due to location change Using the same reading from last session's concept mapping, examples of other note taking formats: Cornell notes: Cornell notes (Dawson and Guare, 2010). Form 5.10. Bulleted outline Flow chart Open to any page in text, what format	**Treatment:** Which note taking idea from this lesson do you like most? What class or assignment might you use it for? How will you know if it is helpful On a scale of 1 to 10, how difficult was your homework this week? Did you feel capable of completing it? **Control:** Thinking about homework, which class is

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
			would you use?	most difficult for you and why?
11 12/15	Self-reflection	Goal monitoring: attribution	**Circle:** What strategy that we have learned about have you used in class and how did it go (scale of 1-10)? Define attribution Model example using graphic organizer Student complete organizer independently and conference.	**Treatment:** Did you use any concept maps, graphic organizers, or visuals this week to help you learn? Was it assigned or by choice? Was it helpful? How? What is your current SMART goal? **Control:** Did you use any graphic organizers or visuals this week to help you learn (Yes/No). Was it assigned or by choice? Was it helpful?
12 12/18	Forethought	Monitoring goal progress	**Circle:** What is your current mastery goal? Discuss with elbow partners, using debrief questions: Explain your goal? What steps have you taken? What strategies or steps have been successful? What have you struggled with? Have you accomplished your goal? What are you thinking about for a new goal?	**Treatment:** What suggestions or ideas did you discuss with your peer today that you can use to work toward your goal? What might you be able to track to think about your progress toward your goal? What strategy that we have learned in previous sessions have you used in class recently? Rate how it went. **Control:** On a scale of 1 to 10 with 10 being extremely effective and 1 not effective at all, how effective is your study environment? Explain

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
				your response.
13 1/8	Performance Forethought	Project Mapping: Long Term Planning	**Circle:** When you have a long-term project, when do you complete it? Current Social Studies project. Teacher models with self talk and sample calendar the completion of project planning template. Sample template/combined with long term planning calendar: 2 long term planning options. Students work with elbow partner to plan their project/practice project.	**Treatment:** What is the academic goal you were working toward? What steps have you taken toward it this week? What did you learn today about long-term planning? So what? (Why is this important?) Now what? (How will I apply this to my work?) **Control:** What is the academic goal you are working toward and what steps have you taken toward it this week?
14 1/12	Performance	Designing an effective study environment (Attention focusing)	**Circle:** Where do you study? If you said bedroom, does that mean bed or desk? Study environment: describe/draw/represent ideal and why Checklist for study environment (Ley &, 1999)	**Treatment:** On a scale of 1 to 10, how effective is your study/work environment? Briefly explain. Think about a time recently when you had a positive academic result. What was it about where or how you studied (completed the assignment) that led to this result? **Control:**

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
				How much time did you spend on homework this week and was it effective?
15	Performance	Metacognitive monitoring	Independent completion: strategy use and study environment: productive and non-productive time wasters.	**Treatment:** What study strategy or strategies did you use this week? Rate how effective it was on a scale of 1 to 10 with 10 being extremely effective and 1 not effective at all. Briefly explain your rating. **Control:** What study strategy or strategies did you use this week? Rate how effective it was on a scale of 1 to 10 with 10 being extremely effective and 1 not effective at all. Briefly explain your rating.
16 1/26	Forethought	Monitoring goal progress	**Circle:** What is your current mastery goal? Discuss with elbow partners, using debrief questions: Explain your goal? What steps have you taken? What strategies or steps have been successful? What have you struggled with? Have you accomplished your goal? What are you thinking about for a new goal?	**Treatment:** Think about a time recently when you had an academic result that you were not pleased with. What was it about where or how you prepared were completed the assignment that led to this result? What was one new idea from today's discussion that you will try? On a scale of 1 to 10, how effective have your action steps toward your goal been? Briefly explain. **Control:** What is your response when you do well on a

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
				test? What is your response when you do not do well?
17 2/2	Performance	Test Prep Session 1	**Circle:** Use one word to describe how you feel right before a test. Opening activity matching the types of tests students take and how they prep for them . Test Preparation Worksheet (create below) Packet of information about test preparation: Menu for study strategies handout, and how they might prepare for their next test.	**Treatment:** How do you respond when you do well on a test? How do you respond when you do not do well on a test? What strategy from today do you think you might use and for what purpose? Is there a strategy or type of test you would like me to include in the next lesson? **Control:** What is the best way for you to study for a test and why?
18 2/9	Performance	Test Prep Session 2	**Circle:** What is your best strategy for memorizing. Rehearsal/memory aids: Define and provide examples of mnemonics (brainstorm as a group) Hansen For you to do (Mnemonics) each group assigned a list/memory challenge to create a mnemonic.	**Treatment:** How do you motivate yourself to study? What do you worry about most before a test or quiz? What is your most effective study strategy? How do you know where it is effective? **Control:** What study strategy or strategies did you use this week? Rate how effective it was on a scale of 1 to 10 with 10 being extremely effective

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
			Ways to review and study from notes • Creating flashcards • Color coding/making a study guide	and 1 not effective at all. Briefly explain your rating.
19 2/12	Performance	Test Prep Session 3	**Circle:** What makes you nervous before taking a test? What makes you confident? Test taking: standardized test taking strategies (based on student request)	**Treatment:** Write a current academic SMART goal for yourself (without referring to a specific letter grade). What study strategy/strategies of you used in the last week? On a scale of 1 to 10, how effective was that strategy? Explain your rating. **Control:** What is the academic goal you are working toward and what steps have you taken toward it this week?
20 2/13 or 2/14	Self-reflection and Forethought	Attribution and monitoring goal progress	**Circle:** Revisit goals Chalk Talk with feedback re: sessions (Ritchhart et al., 2011). Which was most helpful? Which was not helpful at all?	**Treatment:** Describe yourself as a student. How has this changed since the start of seventh grade? What feedback do you have about this series of lessons? What sessions works best?

Session and Date	Phase	Topic/ Learning Strategy	Activities	Treatment Diary Prompts Control Group Exit Tickets
				Would it be helpful to have the sessions all closer together? Any feedback about the like (in minutes) of each session? Which sessions were not helpful? **Control:** Describe yourself as a learner. Have you changed since the start of the year? Explain how.

Appendix C: Recruitment and Parent Consent Letter

Dear Grade 7 Families,

Some of you may know that I have been enrolled in a doctoral program at Johns Hopkins University for the past two years. My research in this program has focused on an identified area of instructional need within JHMS and the design of an intervention to address this need. As part of this, you may recall that your children completed surveys when they were in Grade 5 as part of the needs assessment process of this research.

Attached please find a parental information letter detailing the study that has been designed to address the needs of our students, and what that will require of your children. I will be providing instruction in learning strategies, as detailed in the letter, with students in Grade 7. Please note that to avoid any conflict of interest or concerns about coercion, the Assistant Principal will take primary responsibility for addressing disciplinary matters with students in Grade 7. Participation in the study is entirely voluntary, and declining to participate will not affect your child's educational program.

Upon receipt of this letter, if you agree to your child's participation, please sign and return the letter to your child's homeroom teacher or to the Administrative Assistant in the main office. Please respond by September 12, 2017. Thank you for your time and consideration and please feel free to contact me for further information.

Diane Martin

Principal

Johns Hopkins University

Homewood Institutional Review Board (HIRB)

Parental Permission Form

Title: Implementing a Cycle of Self-Regulation to Decrease Avoidance Behaviors in Middle School Males

Principal Investigator: Dr. Christine Eith, Assistant Professor, School of Education

Date: July 11, 2017

PURPOSE OF RESEARCH STUDY:

Students who engage in disruptive or self-handicapping behaviors may do so to avoid the appearance of inability or incompetence. Specifically, male middle school students have demonstrated greater numbers of avoidance behaviors as measured by disciplinary referrals related to classroom disruption. The purpose of this research study is to determine whether explicit instruction of self-regulation skills can increase self-efficacy (belief in one's ability to succeed in specific situations or accomplish a task). In turn, can this lead to decreased engagement in avoidance behaviors. Additionally, the study aims to determine whether such an intervention can have a positive impact specifically on male students.

We anticipate that approximately 100-110 children will participate in this study.

PROCEDURES:

Stratified random sampling will be utilized to determine student participation in either the control or treatment group. This means that as the researcher I will not select which students participate in the treatment and will be taking no direct action as part of the sampling process.

To group students in a way that creates groups representative of the seventh grade, the following aspects of student data will be utilized: gender, achievement on SBA, final class grades, and disciplinary referral numbers from Grade 5 and 6. Please note that these data are utilized as part of normal educational practice each year, including determining intervention needs and I/E groups. These data will not be used for research purposes without your signed permission. Use of the above data will then allow for grouping (or stratifying) of students without names attached to create treatment and control groups.

- Students in the treatment group will participate in the lessons described below during semester 1.
- Students in the control group will not participate in the lessons described below during semester 1.

All students will participate in two brief surveys during class time, one in September and one in January. Each survey administration will take no longer than one 45-minute class period, and will include the following components:

  - Patterns of Adaptive Learning subscales:

        - Mastery goal orientation
        - Academic self-handicapping
        - Academic efficacy
        - Disruptive behavior
    - Motivated Strategies for Learning Questionnaire: Cognitive Strategy Scale
        - Rehearsal Strategies
        - Elaboration Strategies
        - Organization Strategies
        - Metacognitive Self-regulation

- To the extent possible, survey administration will be scheduled to minimize impact on instruction (i.e. when a substitute is scheduled in the classroom).
- Students in the **control group** will participate in core instruction and intervention as planned by core academic teachers. Control group students will also respond to weekly reflection questions focused on personal goals, study strategies, personal progress in classes, and learning strategies (e.g. note taking, time management, study strategies). These control group responses will be analyzed at the completion of the intervention as a method for qualitative benchmarking and comparison between control and treatment.
- In addition to the above surveys, students in the **treatment condition** will:
    - Engage in 20 weekly sessions throughout the first semester, each one lasting approximately 30 minutes. These sessions will take place during Intervention/Extension period, resulting in no missed instruction.

Explicit instruction will occur in components of a cycle of self-regulation, to include lessons about: goal setting and action step planning, self-efficacy, self-observation and self-monitoring, learning strategies (e.g. note taking, time management, study strategies), self-reflection, self-evaluation, and attribution.

- Participate in activities and lessons within each session. Students will choose core content and assignments for application and practice of new skills, and monitor/record results. Instructional methods might include: teacher and peer modeling, peer collaboration, protocols for discussion (e.g. Chalk Talk, Think-Pair-Share), independent application of skills, videos and class discussions, individual conferencing with teacher.
- Utilize and reflect on using applicable learned strategies in completing work in core classes and at home.
- Complete weekly reflection prompts in a structured diary reflecting on new learning, progress toward goals, and strategy use in core classes. These reflection prompts will act as a practical measurement tool used by the researcher throughout the intervention to drive instructional decisions toward learning targets. The researcher will remain attentive to needs identified in these responses to modify instructional strategies as needed moving forward to meet the learning targets. The lesson targets will include: note taking strategies, design of an monitoring progress toward personal mastery goals, designing and utilizing effective study

environments, test preparation strategies, time planning and management strategies.

- Researcher will complete reflection after each lesson and review of prompts to monitor and reflect on: the instructional techniques utilized, their level of effectiveness, adjustments for upcoming lessons, and adjustments for future implementation.
- No formal schedule change is required for participation. Students during Intervention/Extension period are scheduled in a fluid manner based on current needs and team priorities. Students who participate will continue to have access to needed intervention 4 days a week.

RISKS/DISCOMFORTS:

The risks associated with participation in this study are no greater than those encountered in daily life. Students will engage in instructional activities similar to those encountered on a daily basis, and data gathered and utilized in the study include data sources used for various purposes within the school setting and student work samples.

BENEFITS:

Students who participate in the treatment group may benefit from increased skills and strategies related to learning strategies and self-regulation. These may have a positive impact on classroom performance and behavior. However, prior to the completion of the study it is unknown if these benefits will occur.

There are no direct benefits to students who participate in the control group.

This study may benefit other students if the results lead to a better understanding of the ways in which students can benefit from this instruction. If the series of lessons leads to positive results, those in the control group may have access to these lessons during semester 2, and future cohorts of students may also engage in this instruction.

Benefit beyond JRMS may occur if a focus on self-regulation can positively impact avoidance, then other schools and students may benefit from the information.

This study may benefit society if the results lead to a better understanding of student motivation, learning strategies, and behaviors.

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:

Your child's participation in this study is entirely voluntary: You choose whether to allow your child to participate, and we will also ask your child whether he or she agrees to take part in the study. If you decide not to allow your child to participate, or your child chooses not to participate, there are no penalties, and

neither you nor your child will lose any benefits to which you would otherwise be entitled.

If you and your child choose to participate in the study, you or your child can stop participation at any time, without any penalty or loss of benefits. If you want to withdraw your child from the study, or your child wants to stop participating, please contact the school counselor. She will arrange for any necessary changes.

CIRCUMSTANCES THAT COULD LEAD US TO END YOUR PARTICIPATION:

Under certain circumstances we may decide to end your child's participation before he or she has completed the study. Specifically, we may stop your child's participation if circumstances such as illness or absences require that the time spent on the intervention is needed to address other academic priorities. This decision would be made in conjunction with the school counselor and assistant principal, to ensure that the school is best meeting your child's needs.

There may also be other circumstances that would lead us to end your child's participation.

ALTERNATIVES TO PARTICIPATION:

Students who do not participate in the treatment group may have an opportunity to participate in a similar series of lessons at the completion of the study, if the lessons have a positive impact.

CONFIDENTIALITY:

Any study records that identify you or your child will be kept confidential to the extent possible by law. The records from your child's participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the National Institutes of Health and the Office for Human Research Protections. (All of these people are required to keep your identity and the identify of your child confidential.) Otherwise, records that identify you or your child will be available only to people working on the study, unless you give permission for other people to see the records.

Study records will be treated as follows to maintain confidentiality:

- Survey results will be stored in a password-protected file.
- Structured diaries collected from students in the treatment group that are not electronic will be kept in a secure off site location.
- Structured diaries in an electronic form will be stored in Google classroom and accessible only to the participant and to the researcher in a view only capacity and the participant.

COMPENSATION:

Your child will not receive any payment or other compensation for participating in this study.

IF YOU HAVE QUESTIONS OR CONCERNS:

You and your child can ask questions about this research study now or at any time during the study, by calling Diane Martin, researcher, at (xxx) xxx-xxxx.

If you or your child have questions about your rights as a research participant or feel that you have not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

WHAT YOUR SIGNATURE MEANS:

Your signature below means that you understand the information in this consent form. Your signature also means that you agree to allow your child to participate in the study.

By signing this consent form, you and your child have not waived any legal rights your child otherwise would have as a participant in a research study.

_____

Child's Name

_____

Signature of Parent **Date**

Signature of Legal Guardian (if applicable) **Date**

Signature of Person Obtaining Consent **Date**

(Investigator or HIRB-Approved Designee)

Appendix D: Student Assent Script

Johns Hopkins University

Homewood Institutional Review Board (HIRB)

Assent Form

	Title: Implementing a Cycle of Self-Regulation to Decrease Avoidance Behaviors in Middle School Males
	Principal Investigator: Dr. Christine Eith, Assistant Professor, School of Education
Date:	July 20, 2017

I want to tell you about a research study I am doing. A research study is a way to learn more about something. I would like to find out more about whether teaching students strategies in a cycle of self-regulation, including goal setting, learning strategies, and reflection, would help them to engage in class and reduce the amount of avoidance behaviors they engage in. You are being asked to join the study because you are a seventh grade student here at JRMS. We randomly selected you to participate using some of your past performance in classes, on SBA, number of referrals, and making sure that we have boys and girls in the class. I did not know who was selected until today, and did not choose who would participate.

If you agree to join this study, you will be asked to:

- Attend one session a week during IE for a total of 20 sessions
- Take a pre and post assessment questionnaire
- Participate in lessons about goal setting, reflection, and study strategies
- Reflect once a week about progress toward your goal and/or how you have applied what you learned about in your classes

There are no risks associated with your participation. Since all sessions take place during IE your peers will be engaged in academic work during this same time, which could include similar lessons or support. Also, since the topics include goal setting and study strategies, topics that you may have or may in the future discuss in class, there is no risk.

We expect that the study will help you by providing you with tools that you can use to successfully engage in your classes and complete class and homework. This study will help us learn more about the best ways to teach students the skills the need to be successful, active learners.

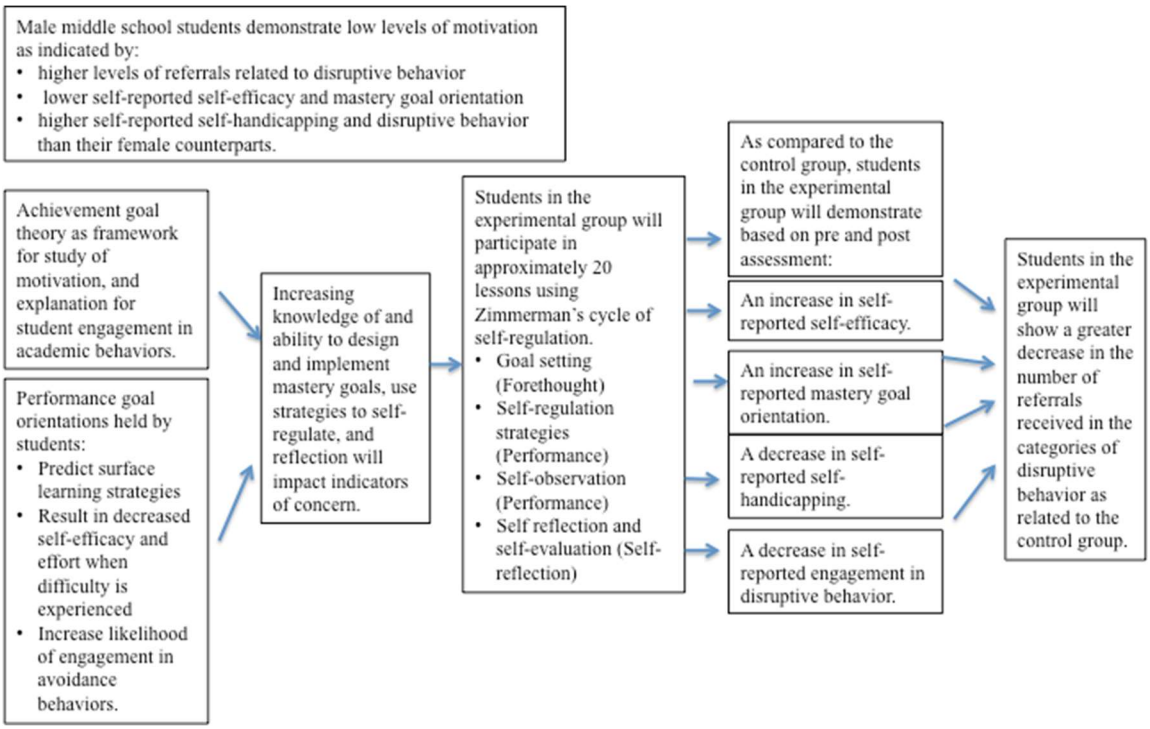
You do not have to join this study. It is up to you. You can say okay now and change your mind later. All you have to do is tell us you want to stop. No one will be mad at you if you don't want to be in the study or if you join the study and change your mind later and stop. If you choose not to participate, you will participate in IE as assigned by your teachers.

Before you say **yes or no** to being in this study, we will answer any questions you have. If you join the study, you can ask questions at any time. Just tell the researcher that you have a question.

If you want to be in this study, please sign your name. You will get a copy of this form to keep.

_____	_____
Sign your name here	**Date**

Appendix E: Theory of Treatment



Appendix F: School Level Data: Both Conditions

Table F1

Control and Treatment Grades, Absences, and Standardized Assessment Scores by Gender

	Control		Treatment	
	Male	Female	Male	Female
	Average Grades		Average Grades	
Math 16-17	89	94	90	90
Math 17-18	89	92	90	87
ILA* 16-17	89	94	89	91
ILA* 17-18	89	95	90	93
Science 16-17	90	95	92	93
Science 17-18	89	91	89	87
Social Studies 16-17	89	92	91	92
Social Studies 17-18	90	95	90	92
	Attendance		Attendance	
Average Absences (2016-2017)	5	5	6	5
Average Absences (2017-2018)	3	3	4	3
	SBA 2017**		SBA 2017**	
Math	57%	43%	67%	50%
English Language Arts	57%	80%	67%	75%

Note. * Integrated Language Arts; ** Smarter Balanced Assessment: state assessment administered in Grades 3-8. Indicates percentage at or above proficient.

Appendix G: Pre and Postassessment Scales

Table G1

Pre and Postassessment Items by Scale

Subscale	Items	Survey
Mastery Goal Orientation	5, 6, 14, 15, 22	PALS
Academic Efficacy	4, 9, 12, 17, 20	PALS
Self-Handicapping Strategies	7, 11, 16, 18, 19, 21	PALS
Disruptive Behavior	8, 10, 13, 23, 24	PALS
Cognitive Scale		
Rehearsal	25, 36, 40, 47	MSLQ
Elaboration	27, 33, 35, 39, 42, 53	MSLQ
Organization	28, 32, 46, 52	MSLQ
Metacognitive Self-Regulation	29, 30, 34, 38, 43, 44, 48, 49, 55, 56, 57, 58	MSLQ
Time and Study Environment	26, 31, 37, 41, 45, 50, 51, 54	MSLQ

Appendix H: Pre-Assessment Survey

Name:

Homeroom teacher:

The questions below require you to focus on one specific class. Please identify one of your four core content courses on which to focus as you answer the questions below.

Section 1: Each response on a scale of 1 (Not at all true), 2,3,4, 5 (Very true)

4. I'm certain I can master the skills taught in class this year.
5. One of my goals in class is to learn as much as I can.
6. One of my goals is to master a lot of new skills this year.
7. Some students purposely get involved in lots of activities. Then if they don't do well on their classwork they can say it is because they were involved in other things. How true is this of you?
8. I sometimes annoy my teacher during class.
9. I'm certain I can figure out how to do the most difficult class work.
10. I sometimes get into trouble with my teacher during class.
11. Some students look for reasons to keep them from studying (not feeling well, having to help their parents, taking care of a brother or sister, etc.). Then if they don't do well on their classwork, they can say this is the reason. How true is this of you?
12. Even if the work is hard, I can learn it.
13. I sometimes behave in a way during class that annoys my teacher.
14. It's important to me that I learn a lot of new concepts this year.
15. It's important to me that I thoroughly understand my classwork.
16. Some students let their friends keep them from paying attention in class or from doing their homework. Then if they don't do well, they can say their friends kept them from working. How true is this of you?
17. I can do even the hardest work in this class if I try.
18. Some students fool around the night before a test. Then if they don't do well, they can say that is the reason. How true is this of you?
19. Some students purposely don't try hard in class. Then if they don't do well, they can say it is because they didn't try. How true is this of you?
20. I can do almost all the work in this class if I don't give up.
21. Some students put off doing their classwork until the last minute. Then if they don't do well on their work they can say that is the reason. How true is this of you?
22. It's important to me that I improve my skills this year.
23. I sometimes don't follow my teacher's directions during class.
24. I sometimes disturb the lesson that is going on in class.

Section 2: Each response on a scale of 1 (not at all true of me) to 7 (vey true of me)

The following questions ask about your learning strategies and study skills. There are no right or wrong answers. Answer the questions about how you study as accurately as possible. If you think the statement is very true select seven. If the statement is not at all true of you, select one. If the statement is more or less true of you, select the number between one and seven that best describes you.

25. When I study for this class, I practice saying the material to myself over and over.
26. I usually study in a place where I can concentrate on my coursework.
27. When I study for this class I pull together information from different sources, such as lectures, readings, and discussions.
28. When I study the readings for this class, I outlined the material to help me organize my thoughts.
29. During class time I often miss important points because I'm thinking of other things.
30. When reading for this class I make up questions to help focus my reading.
31. I make good use of my study time for this course.
32. When I study for this class, I go through readings and class notes and try to find the most important ideas.
33. I try to relate ideas in one subject to those in other courses whenever possible.
34. When I become confused about something I'm reading for class, I go back and try to figure it out.
35. When reading for this class I try to relate the material to what I already know.
36. When studying for this class I read my class notes and the course readings over and over again.
37. I have a regular place set aside for studying.
38. If course materials are difficult to understand, I change the way I read the material.
39. When I study for this class I write a brief summary of the main ideas from the readings and the concepts from the lectures.
40. I memorize keywords to remind me of important concepts in this class.
41. I find it hard to stick to a study schedule.

42. I try to understand the material in this class by making connections between the readings and the concepts from the lectures.
43. Before I study new course material thoroughly I often skim it to see how it is organized.
44. I ask myself questions to make sure I understand the material I have been studying in this class.
45. I make sure I keep up with the weekly readings and assignments for this course.
46. I make simple charts, diagrams, or tables to help me organize course material.
47. I make lists of important terms for each course and memorize the lists.
48. I try to change the way I study in order to fit the course requirements and the teachers teaching style.
49. I often find that I have been reading for class but don't know what it was all about.
50. I often find that I don't spend very much time on this course because of other activities.
51. I rarely find time to review my notes or readings before an exam.
52. When I study, I go over my class notes and make an outline of important concepts.
53. I try to apply ideas from course readings in other class activities such as lecture and discussion.
54. I attend class regularly.
55. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.
56. When studying for this class I try to determine which concepts I don't understand well.
57. When I study for this class I set goals for myself in order to direct my activities in each study period.
58. If I get confused taking notes in class I make sure I sorted out afterwards.

Diane O'Connor Martin

6 Everwood Drive

New Milford, CT 06776

domartinnd@gmail.com

Education:

Johns Hopkins University, Baltimore, MD
Ed.D. Mind, Brain, and Teaching, 2018
Dissertation: Dissertation: *A Cycle of Self-Regulation to Decrease Avoidance Behaviors in Middle School Males*

Pace University, White Plains, NY
Certificate of Advanced Graduate Studies, Educational Administration, 2002

Manhattanville College, Purchase, NY
Master of Professional Studies, Secondary and Special Education, 1999

University of Notre Dame, Notre Dame, IN
Bachelor of Arts, 1995
Major: History
Major: Government and International Studies
Studied abroad: Notre Dame Australia, Fremantle, Western Australia 1994

Professional Experience:

July 2005-Present*: John Read Middle School*, Redding, CT.
Principal
Responsibility for supervision and observation of certified and paraprofessional staff;
Planned and implemented staff development in areas of focus, including reading in all content areas, curriculum alignment, technology, SRBI, block scheduling and critical thinking;
Utilized professional reading with staff members to implement and maintain a school wide focus on reading in all content areas, critical thinking and providing instruction for all learners;
Oversaw adjustment to master schedule that decreased teacher caseloads, created common planning teams, time for interventions, extended learning time and modified block scheduling;
Collaboratively developed and implemented systemic transition systems, practices, and expectations;
Collaboratively developed and maintained building focus on meeting the needs of individual students and teacher professional growth, as evidenced by use of shared time, design of schedule, and focus of work sessions;
Responsible for mentoring JRMS Assistant Principal, faculty member pursuing his EDD and administrative certification and year one elementary Principal in district;
Co-chair of district level middle school grading study.

July 2002-June 2005*: Valhalla Middle High School*, Valhalla, NY.
Assistant Principal

Responsible for supervision and observation of ninety-member faculty and student discipline;
Co-chaired steering committee for successful Middle States Association re-accreditation process;
Served as World Language and Social Studies 6-12 Department Chair;
Coordinated and implemented staff development in Reading and Writing Across the Curriculum, Curriculum Writing, and Character Education;
Testing coordinator for Grade 8 NYS Assessments, including scheduling and arranging for alternate location testing for classified students; Involved in master scheduling for grades 6-12.

January 1998- July 2002: ***Valhalla Middle High School*****, Valhalla, NY.**
Teaching Assignments:
American History Teacher, Grade 8, 1998-2002
Health Teacher, Grade 7, 1999-2000
Computer Applications Teacher, Grade 6, 1998